86-773 (1)

No.

Supreme Court, U.S.
FILED
NOV 12 1986
JOSEPH F. SPANIOL, JR.
CLERK

IN THE

Supreme Court of the United States

October Term, 1986

STORA KOPPARBERGS BERGSLAGS AB, UDDEHOLMS AB, UDDEHOLM CORPORATION, KLOSTER SPEEDSTEEL AB, and SPEEDSTEEL OF NEW JERSEY, INC.,
Petitioners,

v.

CRUCIBLE, INC. and CRUCIBLE MATERIALS CORP.,
Respondents.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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Questions Presented

1. Was the rule set forth by the Supreme Court in *General Electric* v. *Jewel Incandescent Lamp Co.*, 326 U.S. 242 (1945)—that it is not patentable merely to recognize an inherent characteristic of a prior art product—properly ignored by the Court of Appeals?

2. May the Court of Appeals for the Federal Circuit substitute its own factual determination for that of the District Court on the issue of willful infringement, particularly when doing so requires the Court to ignore undisputed evidence relied upon by the District Court and to interpret disputed evidence differently than did the District Court?

3. Does the Constitutional standard for patentability, which precludes the removal of existent knowledge from the public domain, permit a holding, made as a matter of law, that a photograph in a prior art patent which matches a claim limitation relating to size cannot be relied upon to establish anticipation of that limitation?

4. Does the patentee's admission that "no reference is more pertinent" than a knowlingly withheld reference, combined with Examiner's stated conclusion that the same reference is "closer than any of the prior art considered," establish the materiality of the withheld reference under 37 C.F.R. 1.56(a), contrary to the conclusion reached by the Court in this case but consistent with its conclusion in another case?

Statement Pursuant to Rule 21(b)

In addition to the parties listed in the caption of the case in this Court, the parties in the Court of Appeals below included Stora Kopparberg Corporation, Fagersta AB and Fagersta, Inc.

Statement Pursuant to Rule 28.1

The subsidiaries and affiliates of Stora Kopparbergs Berslags AB, other than wholly owned subsidiaries, are as follows:

Orealvens Kraft AB
Spjutmo Kraft AB
Blybergs Kraft AB
AB Aroskraft
Combi Shipping AB
Diacell AB
Gavle Sjöfarts AB
Horrmundsvalla Kraft AB
Hylte Bruks AB
Harjeans Kraft AB
Industriskog AB
Pegenova AB
Vasa Kraft AB
Scanwood Ltd.
AB Bergslagets Praktiska Skolor
Finbruken AB
Förvaltnings AB Gavle Stuveriintressenter
AB Ljusnans Samkörning
Mackmyra Celulosaflis AB
Nas-Snöakvarns AB
Pressretur AB
Tidningspappersbrukens Forskningslab AB
Tratag AB
Freco Bois France SA
Scanpapel SA, Argentina
Scanpapel SA Spain
Scantimber BV
Thai Swedish Mining Comp Ltd.
Dala Tillvaxt AB
Fiberinvest AB

AB Industrileveranser
Karlshammnsverkets Kraftgrupp AB
Massaindustrins Virkesimport AB
Ockelbo Kraft AB
OKG AB
Söderfors Kraft AB
Söderhamns Stuveri AB
Söderhamns Tillvaxt AB
Oy Kaukas Ab
New South Inc.
Gavle-Sandviken Flygfalt AB
Krangedegruppens Samkörnings AB
Narsens Kraft AB
Svensk Energiförsörjning AB
Svensk Interkontinental Lufttrafik AB
Varuagarnas Intresse AB
Press Papers Ltd
Société Gabonaise de Cellulose SA
Société OSPACO
SODIPEL SARL

The parent companies, subsidiaries and affiliates, other than wholly owned subsidiaries, of Uddeholms AB and Uddholm Corporation are as follows:

AGA AB
Uddeholm Tooling AB
Kinnevik AB

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Petitioners, Stora Kopparbergs Bergslags AB, Uddeholms AB, Uddeholm Corporation, Kloster Speedsteel AB, and Speedsteel of New Jersey, Inc. (hereinafter "Stora") pray that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Federal Circuit.

Opinions Below

The opinion of the Court of Appeals for the Federal Circuit, as amended on granting of rehearings, is reported at 793 F.2d 1565, and appears in unamended form in the

Appendix to this Petition at A1. The opinion of the Court of Appeals granting in part Stora's petition for rehearing is reported at 231 U.S.P.Q. 160 (A102). The opinion of the District Court following trial is reported at 594 F.Supp. 1949 (A39). A supplemental memorandum opinion is set forth in the Appendix (A77).

Jurisdiction

The opinion of the Court of Appeals for the Federal Circuit affirming in part and remanding in part the decision of the United States District Court for the Western District of Pennsylvania was issued on June 11, 1986. Stora's timely petition for rehearing was granted in part on August 15, 1986. This Court has jurisdiction under 28 U.S.C. § 1254(1).

Constitutional Provisions and Regulations Involved

Article 1, section 8, clause 8 of the Constitution:

> The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

Fed. R. Civ. P. 52(a):

> (a) Effect. In all actions tried upon the facts without a jury or with an advisory jury, the court shall find the facts specially and state separately its conclusions of law thereon, and judgment shall be entered pursuant to Rule 58; and in granting or refusing interlocutory injunctions the court shall similarly set forth

the findings of fact and conclusions of law which constitute the grounds of its action. Requests for findings are not necessary for purposes of review. Findings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses. The findings of a master, to the extent that the court adopts them, shall be considered as the findings of the court. It will be sufficient if the findings of fact and conclusions of law are stated orally and recorded in open court following the close of the evidence or appear in an opinion or memorandum of decision filed by the court. Findings of fact and conclusions of law are unnecessary on decisions of motions under Rules 12 or 56 or any other motion except as provided in Rule 41(b).

37 C.F.R. 1.56(a):

(a) A duty of candor and good faith toward the Patent and Trademark Office rests on the inventor, on each attorney or agent who prepares or prosecutes the application and on every other individual who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application. All such individuals have a duty to disclose to the Office information they are aware of which is material to the examination of the application. Such information is material where there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent. The duty is commensurate with the degree of involvement in the preparation or prosecution of the application.

Statement of the Case

This case involves two patents, Holtz U.S. Patent No. 3,746,518 (the "Holtz patent") and Steven U.S. Patent No. 3,561,934 (the "Steven patent"), relating to high speed tool steels from which are made metal-cutting tools, such as those used in the automobile industry to manufacture gears, valves and similar machined parts. The high speed steels which form the subject matter of the Holtz and Steven patents are made from fine metal particles which are heated and consolidated to make an extremely hard and durable final product. In particular, the patents relate to steels in which the "carbide" particles are evenly dispersed and quite small—as opposed to more conventional cast (i.e., melted and solidified) products in which the carbides tend to be relatively large and unevenly distributed.

Only one claim of each patent was in issue, Holtz claim 30 and Steven claim 4 (both quoted by the Court of Appeals, A7-8). In substance Holtz claim 30 calls for an alloy body formed from a "supersaturated solid solution" (i.e. formed from metal powder) which is "substantially fully dense" (has no voids) and has "uniformly dispersed" carbides "substantially entirely less than three microns in maximum dimension."[1] Steven claim 4 recites the Holtz alloy *exactly* and goes on to specify that the alloy is a "hob"[2] and that the alloy is "characterized by size change uniformity upon austenitizing, quenching and tempering"

1. The elemental composition of the Holtz alloy is not relevant to this appeal.

2. A "hob" is a well-known cutting tool; see *infra*, page 8, footnote 4.

(i.e. resistance to distortion during heat treatment). This "size change uniformity" characteristic was admitted by Crucible and held by the Court of Appeals to be inherent in the Holtz alloy. As noted by the Court of Appeals, the Holtz application was filed prior to the Steven application and Holtz is prior art with respect to Steven. (A18, footnote 7)

The case was tried before the District Court in September-October, 1982, jurisdiction having been established under 28 U.S.C. § 1338(a). On September 19, 1984, the District Court held Holtz claim 30 and Steven claim 4 valid and infringed by Stora's products designated ASP 23, 30 and 60. The District Court further found that this was not an exceptional case such as would justify an award of increased damages or attorney fees, and stated its reasons for so finding.

On appeal, the Court of Appeals for the Federal Circuit affirmed the District Court on validity and infringement but reversed the District Court's determination that there was no willful infringement. The Court of Appeals remanded the case to the District Court for a determination of whether increased damages or attorney fees were appropriate.

Reasons for Granting the Petition

The Court of Appeals' Decision Is in Direct Conflict with the Decision of this Court in *General Electric* v. *Jewel Incondescent*

Rule 17 of the Supreme Court Rules, entitled "Considerations governing review on certiorari", sets forth the following as one of the reasons that will be considered:

> (c) When . . . a federal court of appeals . . . has decided a federal question in a way in conflict with applicable decisions of this Court.

The decision below is diametrically opposed to the decision of this Court in *General Electric Co.* v. *Jewel Incondescent Lamp Co.*, 326 U.S. 342 (1945). *General Electric* has long stood and now stands for the proposition that the mere recognition of an inherent feature of a prior art product cannot be patentable. As stated by the Supreme Court in *General Electric*:

> If A without mentioning the element of strength patented a bulb which was extra strong, B could not obtain a patent on the bulb because of its strength, though he was the first to recognize that feature of it. (326 U.S. at 247)

Included in this unassailable proposition is the caveat that the inherent feature need not be obvious—i.e., by denying a patent to a person even "though he was the first to recognize that feature of it" is but another way of stating that the inherent property (e.g. bulb strength) need not be obvious.

As recently as 1985, the Court of Appeals in *Titanium Metals Corporation of America* v. *Banner*, 778 F.2d 775, 782 (Fed. Cir. 1985) faced with virtually the identical issue here presented—the patentability of a claim which recited an old alloy "characterized by good corrosion resistance in hot brine environments"—recognized the *General Electric* rule and, in correctly holding the claim invalid, stated:

> Congress has not seen fit to permit the patenting of an old alloy, known to others through a printed publication, by one who has discovered its corrosion resistance or other useful properties . . .

Now, unequivocally and without explanation, the Court of Appeals below has cast aside *General Electric* and its progeny.[3] Hereafter, and *General Electric* notwithstanding, the Court of Appeals tells us that the existence of an inherent property alone is not enough to preclude patentability; one must *prove* that the inherent property was *obvious*. As stated by the Court of Appeals:

> Stora bases a major argument on the ***undisputed fact that size change uniformity is an inherent property of the alloy disclosed in the '518 patent.*** That argument is unpersuasive when confronted by Stora's ***failure to establish at trial that that inherency would have been obvious*** to those skilled in the art when the invention of claim 4 was made. Inherency and obviousness are distinct concepts. (A21; emphasis added)

3. *Scholl, Inc.* v. *S.S. Kresge Co.*, 580 F.2d 244, 247-248, (7th Cir. 1978) where the claimed sandal would have been obvious to enhance comfort, the fact that it also provided some orthopedic benefit does not confer patentability; *W. L. Gore & Assoc., Inc.* v. *Carlisle Corp.*, 529 F.2d 614, 621 (3rd Cir. 1976) where pregrooving of insulating material was disclosed in the prior art, the fact that it may have been done for a different purpose does not take the claimed process outside of the rule in *General Electric; W. L. Gore & Assoc., Inc.* v. *Garlock, Inc.*, 721 F.2d 1540, 1548 (Fed. Cir. 1983); *cert. denied*, 105 S.Ct. 172 (1984); where the Federal Circuit Court again acknowledged the authority of *General Electric*, noting that "it is . . . irrelevant that those using the invention may not have appreciated the results . . . [w]ere that alone enough to prevent anticipation, it would be possible to obtain a patent for an old and unchanged process." See also: *In re Wiseman*, 596 F.2d 1019, 1023 (CCPA 1979); *Application of May*, 574 F.2d 1082, 1090 (C.C.P.A. 1978); *Zoomer, Inc.* v. *Paillard Products*, 258 F.2d 527, 529 (2nd Cir. 1958); *Gould-National Batteries, Inc.* v. *Gulton Industries, Inc.*, 361 F.2d 912, 915 (3rd Cir. 1966); *Servo Corporation of America* v. *General Electric Company*, 337 F.2d 716, 719 (4th Cir. 1964); *cert. denied*, 383 U.S. 934, *reh. denied*, 384 U.S. 914 (1966); *May* v. *American Southwest Waterbed Distrib.*, 715 F.2d 876, 881 (5th Cir. 1983); *cert. denied*, 465 U.S. 1103 (1984); *Research Corporation* v. *Nasco Industries, Inc.*, 501 F.2d 358, 360 (7th Cir. 1974); *cert. denied*, 419 U.S. 1096 (1974); *Exer-Genie, Inc.* v. *McDonald*, 453 F.2d 132, 134-135 (9th Cir. 1972); *cert. denied*, 405 U.S. 1075 (1972); *National Distillers and Chemical Corp.* v. *Brenner*, 389 F.2d 927, 929 (D.C. Cir. 1967).

This "undisputed fact", that size change uniformity is an inherent property of the Holtz steel, should have been fatal to the Steven patent. As noted earlier, Steven claim 4 describes a metal body having *exactly* the alloy composition of the high speed steel disclosed in the prior art Holtz patent, merely adding thereto the recitation that the alloy body is "characterized by size change uniformity upon austenitizing, quenching and tempering". It is this "size change uniformity" which the Court of Appeals noted was undisputedly inherent.[4]

In stating the proposition that Stora had to prove the obviousness of inherency, the Court cited *W. L. Gore & Associates's* v. *Garlock*, 721 F.2d 1540, 1555 (Fed. Cir. 1983) for the statement therein that "[i]nherency and obviousness are distinct concepts". (A21) It is, however, *because* inherency and obviousness are distinct concepts that a defendant need not tie them together by proving that an inherent characteristic would have been obvious.[5] As held by the Supreme Court in *General Electric*, one may concede for purposes of argument that it was *not* obvious to recognize an inherent characteristic of a product, and

4. Steven claim 4 also requires that the metal body be a "hob". Although the word "hob" is not used in Holtz, Crucible acknowledged that the type of tool called a "hob" is disclosed by Holtz. As stated by Crucible in seeking to provoke a Patent Office interference between Holtz and Steven:

> . . . it is well known that high speed tool steels are used primarily for cutting tools, such as broaches, chasers, cutters, drills, *hobs*, reamers and taps. Accordingly, disclosure of a cutting tool configuration known as a 'hob' is believed to be reasonably apparent in the [Holtz] disclosure. (Emphasis added)

5. In *W. L. Gore*, the "distinct" concept of obviousness was in issue since the Court of Appeals specifically held that it was not satisfied that the assertedly inherent "effect" was present in all instances. 721 F.2d at 1554.

yet inherency along will defeat a patent directed to the characteristic. Once inherency is established, obviousness of the inherent property is no longer an issue.

In seeking the grant of this petition, Stora does not ask this Court to ignore "the ancient axiom that hard cases can make bad law". *Michigan* v. *Jackson*, 106 S.Ct. 1404 (1986). On the contrary, the facts here could be used as a textbook example of the rule of law set forth in *General Electric*. The Court of Appeals has stated that the inherency of size change uniformity is "undisputed". The claim language in question could not be better (for purposes of applying the rule in *General Electric*); the claim recites the prior art steel composition and then states that this composition is "characterized by size change uniformity"—i.e., characterized by an undisputedly inherent feature.

It is respectfully submitted that if the rule in *General Electric* is to be reaffirmed, or indeed if it is to be modified or set aside, the facts of the present case provide the appropriate vehicle.

The Court of Appeals Finding of Willful Infringement Is Contrary to Rule 52(a) and the Admonitions of the Supreme Court

In *Dennison Manufacturing* v. *Panduit Corp.*, —— U.S. ——, 106 S.Ct. 1578 (1985) the Supreme Court stressed the importance of Federal Rule of Civil Procedure 52(a) and remanded to the Court of Appeals for the Federal Circuit its decision reversing factual findings made by the District Court. Now, less than two months after the re-

mand in *Dennison*, the Federal Circuit has again usurped the factfinding role of the District Court, this time ignoring substantial evidence relied upon by the District Court, adopting its own factual interpretation of other evidence, and ultimately reaching a finding of fact contrary to that of the District Court.

The issue presented is whether Stora's infringement of the Holtz patent was willful. As to this issue, the District Court held:

> The defendants' claims of good faith have not been overcome by the evidence, and we decline to find this to be such an 'exceptional case' under 35 U.S.C. § 284 1982), to justify the award of treble damages. The issues of patent vaildity, especially, presented substantial questions upon which there has been genuine debate and honest disagreement as evidenced throughout this litigation and by the protracted and checkered history of this matter in the PTO. (A73; 594 Fed. Supp. at 1264).

The "checkered history" referred to by the District Court included the fact, referred to *infra*, pages 18-21, that Crucible failed to cite a certain Comstock British patent during the prosecution of Holtz. This Comstock patent was known to Crucible in that it was cited in the corresponding British applications of both Holtz and Steven and was expressly relied upon by Stora in its initial discussions with Crucible in 1973. In a subsequent (to the issuance of Holtz) PTO proceeding to determine whether the withheld Comstock reference was "material" within the meaning of 37 C.F.R. § 1.56(a), the original Holtz Examiner

determined that it certainly was material. As to Comstock the Examiner stated:

> The *Comstock* reference is closer than any of the prior art considered during the prosecution of the patent, including the *Reen* patent 3,150,444.

When asked again by the Assistant Commissioner, he was unwavering:

> I am still of the opinion that the British Comstock et al. patent is closer prior art than Reen's patent 3,150,444.

The Examiner's determination, which alone should have been sufficient to render the Holtz patent forever unenforceable, was not reversed by the PTO Board of Appeals *until April 25, 1984, over a year and a half after the conclusion of the District Court trial.*[6] Stora thus was fully justified in its belief that the Examiner would be upheld and that its sales of the accused products was lawful.

The District Court's clearly supported findings of fact notwithstanding, the Court of Appeals concluded that the District Court's decision was clearly erroneous[7] and that Stora's infringement was willful. The Court of Appeals did not comment at all on the District Court's findings of "genuine debate", "honest disagreement" or "the protracted and checkered history of this matter in the PTO". Rather, it referred to a certain Hellman memorandum (set

6. The PTO was considering the issue of inequitable conduct simultaneously with the District Court proceedings.

7. Merely to state that the District Court findings were "clearly erroneous" does not satisfy Rule 52(a). Indeed, as held by the Supreme Court in *Anderson* v. *Bessemer City,* 470 U.S. 564, 574 (1985), "[w]here there are two permissible views of the evidence, the factfinders choice between them cannot be clearly erroneous.

forth in the Court of Appeals decision, A24) and the fact that Stora did not rely upon advice of counsel at trial.

As to the latter, i.e., failure to waive the attorney-client privilege and assert advice of counsel, the Court of Appeals itself held:

> An 'aggressive strategy' *unsupported by any competent advice of counsel,* thorough investigation of validity and infringement, *discovery of more pertinent uncited prior art, or similar factors,* is the type of activity the reference in the patent law to increased damages seeks to prevent. (A30, footnote 11; emphasis added)

As noted above, there was indeed uncited prior art. It was this prior art that the Examiner described as "closer than any of the prior art considered".

With respect to the Hellman memorandum, the Court of Appeals purported to rely upon a finding of the District Court (supposedly made at A72; 594 F.Supp. at 1294) that Hellman "assumed the patents valid and infringed." (A27) First, a reading of the memorandum itself (A24) permits no such conclusion, either by the District Court or the Court of Appeals. Second, and just as important, the District Court *made no such finding,* instead merely noting

> First, Dr. Hellman's memorandum was based upon the *assumption* that defendants were infringing plaintiff's patent claims, as to which assumption he stated "we have no possibilities for checking this . . ."[8] Second,

8. The Holtz patent had not yet issued and hence Stora could not investigate its scope or validity.

> based upon the *assumed* premise that plaintiff's patents were valid and being infringed by defendants, Dr. Hellman charted a strategy to check patent validity; contest patent validity; and, in the process, to get defendants' products into the United States market. (Emphasis the District Court's).

The District Court, after *stressing* that the premise of validity and infringement was merely "assumed" (since the Holtz patent had not yet issued), concluded as an unassailable finding of fact that

> the Hellman memorandum merely evidences an aggressive strategy of contesting the patents. (A73; 594 F.Supp. at 1294).

The District Court not only considered the Hellman memorandum, but also had the benefit of Dr. Hellman's testimony at trial, something the Court of Appeals did not have. As held by this Court in *Anderson* v. *Bessemer City*, *supra*, page 11,

> [w]hen findings are based on determinations regarding the credibility of witnesses, Rule 52(a) demands even greater deference to the trial court's findings; for only the trial judge can be aware of the variations in demeanor and tone of voice that bear so heavily on the listener's understanding of and belief in what is said. (470 U.S. at 575)

Of particular relevance here is the Court of Appeals' recent decision in *Rolls-Royce Ltd.* v. *GTE Valeron Corp.*, 800 F.2d 1101, 1110 (Fed. Cir. 1986). There the Court of Appeals specifically *followed* this Court's decision in *Anderson* v. *Bessemer City* and held:

> In respect of willfulness, there cannot be hard and fast *per se* rules. The district court, considering the

> evidence before it and the testimony and demeanor of the witnesses, must in each case determine whether an infringer has discharged its affirmative duty of exercising due care.
>
> * * *
>
> The drawing of inferences, particularly in respect of an intent-implicating question such as willfulness, is peculiarly within the province of the fact finder that observed the witnesses.[9]

The Court of Appeals' factual determination, diametrically opposed to the District Court's finding, that Stora's infringement was willful cannot be sustained under Rule 52(a) or the Federal Circuit Court and Supreme Court rulings directed thereto.

The Court of Appeals' Decision Results in the Removal of Existent Knowledge from the Public Domain

This Court held in *Anderson's-Black Rock* v. *Pavement Salvage Co., Inc.*, 396 U.S. 57, 61 (1969):

> The patent standard is basically constitutional, Article I, § 8, of the Constitution authorizing Congress "[t]o promote the Progress of . . . useful Arts" by allowing inventors monopolies for limited times. We stated in *Graham* v. *John Deere Co.*, 383 U. S. 1, 6, that under that power Congress may not "enlarge the patent monopoly without regard to the innovation, advancement or social benefit gained thereby. Moreover, Congress may not authorize the issuance of patents whose effects are *to remove existent knowledge from the public domain, or to restrict free access to materials already available* [emphasis added]. Inno-

9. In *Rolls-Royce*, the Court of Appeals affirmed the District Court's determination of non-willful infringement despite the absence of an attorney opinion.

> vation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system which by constitutional command must 'promote the Progress of . . . useful Arts.' This is the *standard* expressed in the Constitution and it may not be ignored." (Emphasis the Court's)

By its decision in the present case, the Federal Circuit Court has effectively removed a significant category of "existent knowledge" from the public domain.[10] This category is the knowledge embodied in prior art patent photographs, which in conjunction with the corresponding specifications clearly disclose products asserted to be patentable. The specific holding of the Court of Appeals is as follows:

> That a defendant may when sued so measure a photograph as to match one limitation relating to size does not establish anticipation.[11]

Claim 30 of Holtz (the only Holtz claim in issue) requires a product with carbides having "particle sizes that are substantially entirely less than three microns in maximum dimension." Basic to both the District Court's and this Court's holding that the Holtz patent is not invalid is the conclusion that the prior art U.S. Patent No. 3,150,444

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10. The trend of the Federal Circuit in departing from the Constitutional standard was evidenced in its decision in *Kimberly-Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437, 1454 (Fed. Cir. 1984) in which it held, based on very limited facts, "we hereby declare the presumption that the inventor has knowledge of all material prior art to be dead." The death of this presumption, as declared by the Court of Appeals, would permit a patentee to "remove existent knowledge from the public domain, or . . . restrict free access to materials already available."

11. Quoted as modified by the Court of Appeals on rehearing (A11, modified at A103).

to Reen does not disclose an alloy with carbides having "particle sizes that are substantially entirely less than three microns in maximum dimension". The District Court specifically held

> [a]s noted by the PTO Board of Appeals, while Reen suggested full density and uniform distribution of carbides, there is nothing in Reen which indicates the actual size of the carbides. (A12-13; 594 F. Supp. at 1255).

Stated differently, the *only* thing the District Court found to be missing from Reen is "the actual size of the carbides".

Consistent with the District Court's holding, Reen specifically discloses "alloy steels which . . . exhibit a uniform, evenly distributed, fine carbide structure" and "having a density equal to that published for conventional produced material". As to the allegedly missing link, "the actual size of the carbides", Stora relied upon Figure 2 of Reen. Figure 2 of Reen is a photomicrograph of Reen's powder metallurgy product (reproduced at A105 together with Reen Figure 1 which shows a conventional steel product) which is expressly described by Reen as "taken at a magnification of 1500 diameters". This photomicrograph is further described in the Reen disclosure as follows:

> . . . the specimen of FIG. 2 was taken from strip material processed as set forth below as an example of the method of the present invention. *The finer carbide structure shown by FIG. 2 is readily observable.* (Emphasis added).

Thus Reen told the skilled reader that the object of his invention was full density and fine, uniformly dispersed

carbides. In view of the importance of carbide size, Reen specifically stated that the carbide size "is readily observable" by referring to FIG. 2 which he specifically described as an actual photomicrograph taken at 1500 diameters. The reader was thus urged by Reen to determine the fineness of the carbides shown in FIG. 2 (otherwise why disclose that it was taken at 1500 diameters?), and to observe that none of them are over 3 microns in size. Pursuant to PTO Rule 84, the Reen FIG. 2 photomicrograph was "reduced about one-third in size" during printing by the PTO. Using 1500 diameters, simple measurement and calculation (divide by 1500) establish that the Reen Figure 2 shows carbides no larger than two microns and the original photomicrograph shows carbides no larger than three microns. The Holtz claim limitation of carbides, "less than three microns" is clearly anticipated.

As held by the Court of Appeals in *In re Benno*, 768 F.2d 1340, 1347 (Fed. Cir. 1985):

> This court is not disposed to ignore what it can observe with its own eyes and determine with its own hands for want of some 'expert' to testify about it or some affiant to put the obvious down on paper over his notarized signature.

The holding in *In re Benno* is but a restatement of the Constitutional standard enunciated by this Court in *Anderson's-Black Rock*. Not only should a court refuse to ignore what it can observe, the Constitutional standard dictates that it may not be ignored. The Court of Appeals has rejected the Constitutional standard in ruling that a prior art patent photograph, the sole and stated purpose of which was to depict the size and distribution of the carbides, must be disregarded in determining patentability.

The Court of Appeals' Refusal to Rule that Crucible Engaged in Inequitable Conduct Is in Conflict with Its Own Subsequent Decision in Another Case

The final issue presented for review is that of inequitable conduct.[12] This issue is appropriate for review not because the ruling below is in conflict with the decision of another court of appeals (see Supreme Court Rule 17) but because it is diametrically opposed to a ruling by the *same* Court of Appeals on virtually the *same* facts on the *same* crucial issue. Since the Court of Appeals for the Federal Circuit was created to prevent such inconsistencies in the patent law, its holding here calls for an exercise of this Court's power of supervision.

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12. The District Court, although specifically ruling that there was no inequitable conduct, stated in the alternative that this defense had been waived by Stora. While the Court of Appeals affirmed the District Court on the waiver issue, it went on to hold that the District Court's refusal to find inequitable conduct "has not been shown to be clearly erroneous." (A23) The alleged waiver occurred by reason of Stora's trial counsel's statement at the conclusion of trial that Crucible's inequitable conduct was relied upon merely as a basis for an award of attorney fees. Crucible's counsel immediately countered his adversary's argument as to the legal effect of a finding of inequitable conduct, correctly pointing out that such a finding would render the Holtz patent unenforceable, i.e., "[m]y understanding of the claim that is being made here by the Defendant [Stora] is that the entire patent should be unenforceable because several claims of the patent . . . were procured by fraud, or inequitable conduct, whatever Mr. White wants to call it." The District Court then stated, also correctly, that "I don't know that it is relevant, what would happen to someone. I don't know that the Court should be persuaded one way or the other in its ruling by considerations of what the consequences are." (Tr. 2691) After this colloquy the issue of inequitable conduct was fully briefed by the parties. Indeed, the District Court, in a supplemental opinion requested by Crucible, made specific findings on this issue (A92).

On these facts there clearly was no waiver such as would prevent review of the inequitable conduct issue by this Court.

The decision which conflicts with the holding in this case is *A. B. Dick Company* v. *Burroughs Corporation*, 798 F.2d 1392 (Fed. Cir. 1986). In *A. B. Dick*, the patentee withheld certain prior art references from the Examiner. As to the patentee's argument that these references did not render the patent claims in question to be unpatentable, and hence were not material, the Court held:

> the test for materiality is *not* whether there is anticipation or obviousness but, rather, what a 'reasonable examiner would consider . . . important in deciding whether to allow the application to issue as a patent.' (Emphasis the Court's)

When the patentee in *A. B. Dick* complained that the District Court failed to compare the uncited references with the claims, the Court stated:

> such analysis is unnecessary and inappropriate where, as here, the applicant has stated that he considers the references relevant and important and where an examiner (not demonstrated by Sweet to have been unreasonable) has considered the references 'important' enough to be used as a basis for rejections of previously allowed claims.

Here the facts are even more compelling. The Comstock et al. British patent, which had been cited in the British applications corresponding to both the Steven and Holtz patents and which had been cited by Stora to Crucible at the very outset of this controversy (as noted by the Court of Appeals at A27), was knowingly withheld by Crucible during the prosecution of the Holtz patent. After the Holtz patent issued, and the Examiner cited Comstock et al. in a continuation Holtz application, Crucible argued to the PTO[13]:

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13. The Holtz continuation application contained a claim virtually identical to Holtz claim 30 here in suit.

> It is also applicant's considered opinion that of the Exhibit A references [which included *Reen*], no reference is more pertinent to this application than *Comstock et al.*, U.K. Patent 781,083 the principal reference of record.

Thus while the patentee in *A. B. Dick* admitted that the uncited references were "relevant and important", here we have Crucible arguing that "no reference was more pertinent".

The other factor found by the Court in *A. B. Dick* to be conclusive as establishing inequitable conduct was the fact that the Examiner, "not demonstrated . . . to have been unreasonable", rejected previously allowed claims after discovering the omitted reference on his own. Here again the present facts require a similar holding.

The Examiner who was in charge of the original Holtz application when it was allowed and issued as the Holtz patent was specifically required by the Assistant Commissioner for Patents to state whether there was "a substantial likelihood that a reasonable Examiner would consider the Comstock et al. patent important in deciding whether or not any claim in the Holtz U.S. Patent No. 3,746,518 is patentable" and whether "the Comstock et al. patent [was] closer prior art than any prior art considered during the examination of the Holtz U.S. Patent No. 3,746,518." As noted above, the Examiner's reply was unequivocal:

> The reference [Comstock] is closer than any of the prior art considered during the prosecution of the patent including the Reen patent No. 3,150,444.

As in *A. B. Dick*, there was no demonstration that the Examiner was unreasonable in considering Comstock im-

portant; rather, the Board and the District Court (with the Court of Appeals concurring without comment) merely substituted their own views for the Examiner's views and concluded that Comstock was not more pertinent than Reen and that Comstock would not have required the narrowing of any claims.[14]

If the Court of Appeals for the Federal Circuit is to fulfill its intended function of providing coherency and consistency to the patent law, particularly as to the crucial issue of the degree of candor required by applicant's before the PTO, some reasonable degree of consistency in the application of the law to similar facts is required. In the present case, this consistency can only be achieved through this Court's power of supervision. Given the undisputed facts of the present case, and applying the standard set forth in *A. B. Dick*, the issue of inequitable conduct may be resolved as a matter of law.

Conclusion

It is respectfully submitted that this Court should apply the rule of law enunciated in *General Electric* and declare the Steven patent invalid. The District Court's finding of no willful infringement should be reinstated, there being no reason or basis for remand. The Court of Appeals' refusal to consider Reen Figure 2 should be reversed and

14. This reasoning is nothing more that a reversion to the "but for" test of materiality already rejected by the Federal Circuit in *J. P. Stevens & Co.* v. *Lex Tex Ltd., Inc.*, 747 F.2d 1553, 1559-1560 (Fed. Cir. 1984), *cert. denied*, 106 S.Ct. 73 (1985). Significantly, the *J. P. Stevens* decision *reversed* a District Court finding of no inequitable conduct by reason of the withholding of a reference cited in a corresponding foreign application. Crucible's prior awareness of Comstock arose from a rejection, based upon Comstock, in the corresponding Holtz British application.

the question of Holtz' validity either determined by this Court as a matter of law (it having been held by the District Court that the remaining claim elements are also met by Reen) or remanded for further consideration by the District Court. Lastly, it appears that only this Court can lend consistency to the meaning and application of 37 C.F.R. 1.56(a) and the duty of candor thereby required.

Certiorari should be granted.

Respectfully submitted,

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APPENDIX

Opinion of United States Court of Appeals for the Federal Circuit

Appeal Nos. 85-2174
85-2214
85-2215
85-2274

KLOSTER SPEEDSTEEL AB, SPEEDSTEEL OF NEW JERSEY, INC.,
Appellants,

STORA KOPPARBERGS BERGSLAGS AB, A Swedish Corp., and UDDEHOLMS AB, A Swedish Corp., et al.,
Appellants/Cross-Appellees,

v.

CRUCIBLE INC., ETC., AND CRUCIBLE MATERIALS CORP., ETC.,
Appellees/Cross-Appellants.

Francis J. Hone, of Brumbaugh, Graves, Donohue & Raymond, New York, New York, argued for appellants STORA, etc. With him on the brief was *Richard S. Clark,* of Brumbaugh, Graves, Donohue & Raymond.

Wayne A. Cross, of New York, New York, argued for appellants KLOSTER, etc. With him on the brief were *William Dunnegan,* of Reboul, MacMurray, Hewitt, Maynard & Kristol, and *Arthur D. Gray, Stuart J. Sinder, William J. McNichol* and *Scott A. Wisser,* of Kenyon & Kenyon, of counsel.

Ford F. Farabow, Jr., of Finnegan, Henderson, Farabow, Garrett & Dunner, Washington, D.C., argued for appelles CRUCIBLE, etc. With him on the brief were *Michael C. Elmer* and *Allen M. Sokal*, of Finnegan, Henderson, Farabow, Garrett & Dunner.

Appealed from: U.S. District Court for the
Western District of Pennsylvania

Judge Diamond

Opinion of United States Court of Appeals for the Federal Circuit

Appeal Nos. 85-2174
85-2214
85-2215
85-2274

KLOSTER SPEEDSTEEL AB, SPEEDSTEEL OF NEW JERSEY, INC.,
Appellants,

STORA KOPPARBERGS BERGSLAGS AB, A Swedish Corp., and UDDEHOLMS AB, A Swedish Corp., et al.,
Appellants/Cross-Appellees,

v.

CRUCIBLE INC., ETC., AND CRUCIBLE MATERIALS CORP., ETC.,
Appellees/Cross-Appellants.

DECIDED: June 11, 1986

Before MARKEY, *Chief Judge,* NICHOLS, *Senior Circuit Judge,* and NEWMAN, Circuit Judge.

MARKEY, *Chief Judge.*

Consolidated appeals from a judgment of the United States District Court for the Western District of Pennsylvania holding claim 30 of U. S. Patent No. 3,746,518 ('518 patent) and claim 4 of U. S. Patent No. 3,561,934 ('934 patent) valid and infringed. *Crucible, Inc.* v. *Stora Kop-*

parbergs Bergslags AB, 594 F. Supp. 1249, 226 USPQ 36 (W.D. Pa. 1984). We affirm in part and remand in part.

Background

(1) *Proceedings in the District Court*

In 1974, Crucible, Inc. (Crucible), assignee of the '518 patent (issued July 17, 1973 to Frederick C. Holtz, Jr., on an application filed February 26, 1965), and of the '934 patent (issued February 9, 1971 to Gary Steven on an application filed September 11, 1967), charged Stora Kopparbergs Bergslags AB and Stora Kopparberg Corp. (Stora) with patent infringement in manufacturing and selling "ASP" steel products. On July 25, 1974, Stora filed a declaratory judgment action in the United States District Court for the District of New Jersey alleging patent invalidity, non-infringement, and violation of the antitrust laws. On October 4, 1974, Crucible[1] sued Stora[2] in the Western District of Pennsylvania, where the district court consolidated the suits and severed the antitrust and damage issues for later trial.

In 1976, a proceeding was initiated in the Patent and Trademark Office (PTO) on Stora's protest against a continuing application related to the '518 patent. Crucible's failure to cite a reference during prosecution of the application that resulted in the '518 patent was reviewed in that proceeding.

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1. Crucible Materials Corp., the successor in interest of Crucible, Inc., was added as a plaintiff in an order dated October 11, 1984.

2. In 1977, Uddeholms AB purchased the division of Stora that manufactured ASP steel. Uddeholms and its American marketing subsidiary, Uddeholm Steel Corp., now called Uddeholm Corp., were joined as defendants and are included here under "Stora".

The district court tried the case without a jury on 18 dates between September 13 and October 6, 1982, filed an opinion on September 19, 1984, and entered judgment for Crucible on October 11, 1984. The court held that: (1) claim 30 of the '518 patent had not been proved invalid under 35 U.S.C. §§ 102, 103, or 112, and was infringed by Stora; (2) claim 4 of the '934 patent had not been proved invalid under 35 U.S.C. §§ 102 or 103;[3] (3) Stora had waived its defense that the patents were unenforceable because of inequitable conduct; (4) Crucible was not entitled to increased damages; and (5) no litigant was entitled to attorney fees. In its October 11, 1984 order, the court permanently enjoined Stora and its "successors in interest and assigns" from making infringing ASP steel products.

On October 31, 1982, the 25th day after trial and almost two years before the court's decision, Fagersta AB, a Swedish corporation, and Stora formed Kloster Speedsteel AB and its subsidiary, Speedsteel of New Jersey, Inc. (Kloster), and Kloster purchased the facility Stora used to make the infringing products.

In a March 12, 1985 order disposing of post-trial motions, the district court reviewed its decision and opinion in light of arguments presented by Stora (and repeated by Stora before us). The court: (1) denied a motion by Kloster to modify the injunction by excluding Kloster or by deleting "successors in interest and assigns"; (2) refused to stay the injunction pending appeal; (3) amended the October 11, 1984 order to enjoin Stora from infringing the specifically upheld claims; and (4) anticipating an appeal, amended its opinion to enter a finding that undisclosed

3. Stora admitted infringement of claim 4 of the '934 patent. 594 F. Supp. at 1251, 226 USPQ at 37.

art was not more material than that considered by the examiner, and that, if Stora had not waived its unenforceability defense, it had in any event failed to establish inequitable conduct before the PTO. 226 USPQ 842 (W.D. Pa. 1985).

Stora in Appeal No. 85-2215 and Kloster in Appeal Nos. 85-2174/2274[4] contest the determination that Stora had not shown the claims invalid,[5] and Kloster contests the refusal to modify the injunction. In Appeal No. 85-2214, Crucible cross-appeals from the portion of the judgment refusing to find willful infringement and denying increased damages under 35 U.S.C. § 284 and attorney fees under 35 U.S.C. § 285. On stipulated motion, this court consolidated the appeals on June 14, 1985.[6]

(2) *The Technology*

The present field of technology is that of metal alloy compositions. The focus at trial was on "high speed" tool steels used to make metal cutting tools. High speed tool steels must possess properties of grindability, heat resistance, hardness, toughness, and dimensional stability. Those properties minimize tool replacement and resulting production line shut-downs.

High speed tool steels generally contain relatively large amounts of carbon and significant amounts of alloying

4. The district court, apparently through inadvertence, left "successor in interest and assigns" out of its March 12, 1985 injunction order from which Kloster appealed on March 21, 1985 (85-2174). The court included the phrase in its injunction order dated March 25, 1985, from which Kloster also appeals (85-2274). *See* Fed. R. App. P. 4(a)(4).

5. The issues of validity under 35 U.S.C. § 112 and infringement are not contested on appeal.

6. On November 4, 1985, this court dismissed the appeal of Fagersta AB in response to a stipulated motion of all parties.

elements that form metallic carbides distributed throughout the microstructure of the steel. Conventionally cast high speed tool steels have a microstructure characterized by an inhomogenous distribution of coarse carbides, i.e., striations and stringers resulting primarily from the time required to cool the ingot. That carbide distribution adversely affects grindability and cutting efficiency.

Prior art workers investigated powdered metallurgical techniques. Those workers initially produced a particulate alloy, preferably by atomization, and then applied heat and pressure to consolidate the resulting powders into an integral product.

To achieve substantially full density, workers had to compact the powders at elevated temperatures. High temperatures, however, cause increased rate of carbide growth and agglomeration and loss of carbon. Low temperatures, on the other hand, render the power insufficiently malleable for suitable densification. Thus, prior art workers had to choose between high densification and fine carbide size. The invention disclosed in the '518 patent made it possible for the first time to maintain fine, uniformly dispersed carbides while achieving a fully dense product having satisfactory interparticle bonding.

(3) *The Claims in Suit*

Claim 30 of the '518 patent reads:

> A consolidated integral alloy body which is substantially fully dense formed of a hot worked supersaturated solid solution of an inherently alloying composition, said alloy body consisting essentially of a continuous metallurgical phase with a uniformly disbursed hard phase of minute dispersed hard phase particle sizes that are substantially entirely less than

three microns in maximum dimension, said alloying composition consisting essentially by weight from about .5% to about 5% carbon at least 10% of a hard phased forming element selected from the group consisting of Cr, W, Mo, Ti, Ta, Cb, Zr, Hf, V, and Al, and mixtures thereof, and the remainder base metal and incidental impurities, wherein said base metal is selected from the group consisting of cobalt, iron and nickel, and wherein the total amount of base metal is at least 30%.

Claim 4 of the '934 patent reads:

An article of manufacture as defined in claim 2, in the form of a hob for use in milling applications.

On May 2, 1978, Crucible disclaimed, under 35 U.S.C. § 253, claim 1 and its dependent claim 2 of the '934 patent. Because it depends from and thus includes all limitations of claims 1 and 2, however, claim 4 properly reads:

As an article of manufacture, a metal body constructed of compacted particles of a high speed tool or die steel composition containing a metal component capable of reacting with carbon to form carbides, said reactive metal component being at least one metal selected from the group consisting of titanium, vanadium, molybdenum, zirconium, columbium, tungsten and tantalum each of said particles having carbides of said reactive metal substantially evenly dispersed throughout, said body having a hardness of at least about 58 R_c and being characterized by size change uniformity upon austenitising, quenching and tempering, the composition of said metal body [consisting] of, in percent, 0.80 to 3.00 carbon, up to 2 manganese, up to 1 silicon, up to 0.5 sulfur, up to 18.0 tungsten, up to 10.0 chromium, up to 12 molybdenum, up to 5 vanadium, up to

12 cobalt and balance iron, with tungsten + chromium + vanadium being equal to at least 10 percent, [said metal body being] in the form of a hob for use in milling applications.

Issues Presented

Whether the district court erred in: (1) refusing to hold the asserted claims invalid; (2) refusing to hold the patents unenforceable; (3) denying increased damages and attorney fees; and (4) enjoining Stora's "successors in interest and assigns".

OPINION

(1) Validity

To meet its burden at trial, Stora was required to prove by clear and convincing evidence facts compelling a conclusion of invalidity. *See Datascope Corp.* v. *SMEC, Inc.*, 776 F.2d 320, 323-24, 227 USPQ 838, 840-41 (Fed. Cir. 1985). To meet its burden on appeal, Stora must persuade this court that the district court committed reversible error in determining that it had failed to meet its burden at trial. I must do so by convincing us that the court's probative findings underlying its holdings on validity were clearly erroneous or that its legal conclusions on that issue cannot be supported by those findings or are incorrect as a matter of law. *Atlas Powder Co.* v. *E. I. DuPont De Nemours*, 750 F.2d 1569, 1573, 224 USPQ 409, 411 (Fed. Cir. 1984).

A. Claim 30 of the '518 Patent

The district court properly noted that Stora failed to proffer prior art more pertinent than that considered by

the PTO and threfore had the "added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job." *American Hoist & Derrick o.* v. *Sowa & Sons, Inc.*, 725 F.2d 1350, 1359, 220 USPQ 763, 770 (Fed. Cir.), *cert. denied*, 105 S. Ct. 95 (1984). That deference merely recognizes the statutory mandate that all patents shall be presumed valid. 35 U.S.C. § 282; *see Fromson* v. *Advance Offset Plate, Inc.*, 755 F.2d 1549, 1555, 225 USPQ 26, 31 (Fed. Cir. 1985).

The court appropriately gave weight to two PTO Board of Appeals (Board) decisions on the application that relatd to that on which the '518 patent issued. The Board there resolved issues pertinent to those presented to the district court in this case. *See In re Holtz*, 224 USPQ 714 (Bd. App. 1984) (materiality of uncited art); *In re Holtz*, Appeal No. 470-30 (Bd. App. Aug. 6, 1981) (unpublished) (obviousness). Stora fully participated since 1976 in the PTO proceedings that led to those decisions. Because both sides agreed at trial that the PTO's decisions should be accorded "great weight by the court," Stora's assertion on appeal that the district court gave undue deference to the PTO decisions comes with poor grace.

(a) Anticipation

Stora says the district court should have found claim 30 anticipated under § 102 by the disclosure in U. S. Patent No. 3,150,444, issued September 29, 1964 to Orville W. Reen (Reen patent). Relying principally on figure 2 of the Reen patent, Stora says that figure can be scaled and the carbide particles it shows can then be measured at three microns or less. Stora, however, must show that each element of the claim is found in that single prior art refer-

ence. *Kalman* v. *Kimberly-Clark Corp.*, 713 F.2d 760, 771, 218 USPQ 781, 789 (Fed. Cir. 1983), *cert. denied*, 465 U.S. 1026 (1984). The corollary of that rule is that absence from the reference of any claimed element negates anticipation. *Atlas Powder Co.*, 750 F.2d at 1573-74, 224 USPQ at 411. The district court found no anticipation. That finding is reviewed under the clearly erroneous standard. *Id.*

The district court found, as had the PTO, that nothing in the Reen patent discloses the actual size of the carbides, 594 F. Supp. at 1255, 226 USPQ at 40, and Stora has not shown that finding to have been clearly erroneous. Patent drawings are not drawn to scale, and that a defendant may when sued so measure a drawing as to match one limitation relating to size does not establish anticipation. In all events, the district court found that the Reen patent fails to disclose other elements, and Stora has not shown that finding to have been clearly erroneous.

(b) Obviousness

Stora says the district court made erroneous findings and misapplied the law under 35 U.S.C. § 103, even though the court cited *Graham* v. *John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). More specifically, Stora contends that the district court: (i) considered and discussed only the process disclosed in the '518 patent, not the product set forth in claim 30; (ii) failed to ascertain differences between the invention set forth in claim 30 and the prior art; (iii) failed to find the level of ordinary skill; and (iv) gave undue weight to the objective evidence because it bore no nexus with the claimed invention.

(i) Process

Stora builds its first argument on one sentence in the court's opinion in which it called the invention a "method and process." On the presence of that single sentence, Stora says attributes of method claims in the '518 patent were "brought into play to save claim 30."

In its focus on the phraseology in the court's opinion, Stora reflects its failure to appreciate the appellate function. This court reviews judgments, not phrases. *Fromson,* 755 F.2d at 1556, 225 USPQ at 31. To be relevant on appeal, phrases in a trial court's opinion must be shown not only to have been used in error, but must be shown to have served as the basis of the judgment appealed from. Stora makes no such showing. On the contrary, Stora simply disregards references by the district court to the claimed invention as a product. Much testimony on both sides related to whether the processes of the prior art would result in a product having the properties of the alloy body claimed, and the court was led thereby to discuss processes in its opinion. That fact does not establish, however, that the court based its judgment on the view that the invention of claim 30 was a process.

(ii) Differences

Stora's principal prior art references are: the Reen patent; *Progress Report on Hot Forging Prealloyed Metal Powders,* 10 Precision Metal Molding 38 (Nov. 10, 1952) by Lambert H. Mott (Mott); and British Patent No. 781,083 issued August 14, 1957 to Gregory J. Comstock (Comstock).

Stora urges this court to find that the Reen patent disclosed temperatures similar to those disclosed in the '518 patent and that therefore Reen need not have included a

warning against carbide growth. We are also asked, as was the district court, to reexamine the figure in Reen and measure the size of carbide particles in the figure.

The role of this court on appeal from a judgment of a district court is not that of an examiner considering a claim in an application in light of the prior art. *See Polaroid Corp.* v. *Eastman Kodak Co.*, No. 86-604 slip op. at 4-7 (Fed. Cir. Apr. 25, 1986). Here, a patent has issued, a trial has been conducted on 18 dates, much testimonial and documentary evidence has been received and evaluated by a district judge. Assuming *arguendo* that Stora's and the district court's factual interpretations of the prior art were equally permissible, that circumstance would avail it nothing on appeal, for when there are two permissible views of the evidence, the factfinder's choice between them *cannot* be deemed clearly erroneous. *Anderson* v. *City of Bessemer City, N.C.*, —— U.S. ——, ——, 105 S. Ct. 1504, 1512 (1985). Stora must on appeal establish not only that its view is permissible but that that of the district court is clearly in error.

As all too frequntly occurs on appeal, Stora limits its discussion to evidence that tends to support its view, largely ignoring the contrary evidence accepted by the district court. Particularly ignored are the district court's credibility determinations. That approach cannot of itself establish that the district court's findings were clearly erroneous. *See American Original Corp.* v. *Jenkins Food Corp.*, 774 F.2d 459, 462-63, 227 USPQ 299, 300-01 (Fed. Cir. 1985). "Determining the weight and credibility of the evidence is the special province of the trier of fact." *Inwood Laboratories, Inc.* v. *Ives Laboratories, Inc.*, 456 U.S. 844, 856, 214 USPQ 1, 7 (1982).

At trial, Crucible's main witnesses, Mr. Neumeyer and Dr. Tien, testified that the prior art produced inferior cutting tool steels. Neumeyer said Comstock did not attain full density or fine carbides. He added that one practicing the subject matter of the Reen patent would be unable to achieve full density without sacrificing fine carbide size. Dr. Tien stated that Mott dealt wtih structural alloys from which satisfactory cutting tools could not be produced. That the district court credited that testimony is reflected in its statement:

> We have considered all of the prior art references cited by [Stora] with special attention to those primary sources; i.e., Mott, Comstock and Reen I, and [have] concluded that no prior inventor was able to achieve the requisite combination of high density and finely dispersed carbides necessary to the production of top quality high speed tool steel. Indeed, no prior inventor even regarded such a combination as theoretically possible.

594 F. Supp. at 1257, 226 USPQ at 42 (footnote omitted).

The district court credited the testimony of Mr. Neumeyer and Dr. Tien, and rejected that of Stora's witness, Dr. Lawley. On this record, Stora has shown no "basis on which this court could engage in the normally inappropriate process of substituting a contrary credibility determination for that of the district court." *Windsurfing International, Inc.* v. *AMF Inc.*, 782 F.2d 995, 999, 228 USPQ 562, 565 (Fed. Cir. 1986); *see Railroad Dynamics, Inc.* v. *A. Stucki Co.*, 727 F.2d 1506, 1514, 220 USPQ 929, 937 (Fed. Cir.), *cert. denied*, 105 S. Ct. 220 (1984).

Moreover, the district court met Stora's contentions head-on, rejecting, for example, its argument that Reen did not have to warn against carbide growth. The district

court correctly found, as had the PTO board, that "neither Reen nor Comstock even cautions against carbide growth at elevated temperatures." 594 F. Supp. at 1257 n.9, 226 USPQ at 42 n.9. Indeed, the Reen patent says, "generally the longer the time and higher the temperature, the higher the density of the sintered strip." Comstock, notwithstanding actual knowledge of Mott's carbide size discussion, advises the use of "as high a temperature as possible without melting." Thus, the inventor achieved the invention set forth in claim 30 by doing what those skilled in the art suggested should not be done, i.e., using lower temperatures, a fact strongly probative of nonobviousness. *W. L. Gore & Associates* v. *Garlock, Inc.*, 721 F.2d 1540, 1552, 220 USPQ 303, 312 (Fed. Cir. 1983), *cert. denied*, 105 S. Ct. 172 (1984).

Lastly, the district court's determination that until the disclosure in the '518 patent became available no one could produce the combination of full density and fine carbide size found in the invention set forth in claim 30, and its determination that the limitation to carbides of less than three microns was not, in view of that fact, essential to its nonobviousness conclusion, are fully supported in the record. *See Gardner* v. *TEC Systems, Inc.*, 725 F.2d 1338, 1345-46, 220 USPQ 777, 783-84 (Fed. Cir.), *cert. denied*, 105 S. Ct. 116 (1984).

In arguing that the district court failed to ascertain the differences between the invention set forth in claim 30 and the prior art, Stora has failed to carry its burden on appeal.

(iii) Level of Skill

Stora's contention that the district court committed legal error when it did not find a specific level of skill in

the art is equally without merit. In its opinion, the court said "no prior inventor even regarded [the '518 patent] combination as theoretically possible." 594 F. Supp. at 1257, 226 USPQ at 42. In denying a stay of the injunction pending appeal, the court indicated that it had considered the skill of prior inventors, rendering it unnecessary to find some other level of skill:

> In other words, it was not obvious to *anyone* at *any* level of skill in the art prior to [the '518 patent]. Any further reference, finding, or definitions of level of skill in the art, in view of [the finding that no inventor thought the invention of claim 30 theoretically possible,] would have been superfluous.

226 USPQ at 843 (emphasis in original).

The primary value in the requirement that level of skill be found lies in its tendency to focus the mind of the decisionmaker away from what would presently be obvious to that decisionmaker and toward what would, when the invention was made, have been obvious, as the statute requires, "to one of ordinary skill in the art." 35 U.S.C. § 103; *see Polaroid Corp., supra,* slip op. at 5.

This court has noted instances in which a particular level of skill finding did not improperly influence the ultimate conclusion under § 103. One such instance involved a determination that an invention would have been *obvious* to one of the *lowest* level of skill, i.e., that of a layman. *See, e.g., Union Carbide Corp.* v. *American Can Corp.*, 724 F.2d 1567, 1573, 220 USPQ 584, 589 (Fed. Cir. 1984); *Chore-Time Equipment, Inc.* v. *Cumberland Corp.*, 713 F.2d 774, 779, 218 USPQ 673, 676 (Fed. Cir. 1983). Another involved a determination that an invention would have been *non-obvious* to those of *extraordinary* skill, i.e., other inven-

tors in the art. *See Standard Oil Co.* v. *American Cyanimid Co.*, 774 F.2d 448, 454, 227 USPQ 293, 297-98 (Fed. Cir. 1985); *Kimberly-Clark Corp.* v. *Johnson & Johnson*, 745 F.2d 1437, 1454, 223 USPQ 603, 614 (Fed. Cir. 1984).

To establish reversible error based on a level of skill finding, it must be shown that that finding led to error in the ultimate conclusion. Stora was not in this case prejudiced by the district court's having looked to other inventors, rather than one of ordinary skill. Stora wastes the time of all concerned in arguing that the district court's treatment of the level of skill constituted reversible error.

(iv) Objective Evidence

As the district court noted, the parties stipulated that the properties of the product set forth in claim 30 have led to substantial commercial success for Crucible and Stora. 594 F.Supp. at 1258, 226 USPQ at 43. Incredibly, Stora attempts on appeal to denigrate that commercial success.

Stora says, without citation to the record, that there is no nexus because powder metallurgy high speed tool steels did not emerge on the market until about 1970, years after the filing date of the application that matured into the '518 patent, that substantial sales were not realized until about 1975, two years after the '518 patent issued, and that some old features contributed to commercial success.

Apart from Stora's apparent and disquieting effort to renege on its stipulation, Stora is wrong on the law. Mere passage of time may not be enough to discredit nexus with commercial success. *Windsurfing International*, 782 F.2d at 1000, 228 USPQ at 565 ("Absent some intervening event to which success must be attributed, the delay in achieving the great commercial success of the claimed invention in

this case does not detract from the probative value of the evidence of that success."). Stora has shown no basis whatever for its attack on the relevance of the commercial success which resulted, as Stora stipulated, from the properties of the invention.

Moreover, the district court attributed proper weight to the other objective evidence in this case, i.e., filling of a longfelt and unsolved need, failure of others, and wide acceptance and recognition of the claimed invention. Stora stipulated to that evidence and has not on appeal attempted to renege on that part of its stipultaion.

Conclusion on Nonobviousness of the Invention Set Forth in Claim 30

Stora having failed to discharge its burden on appeal, the portion of the judgment based on the conclusion that the invention set forth in claim 30 of the '518 patent would not have been obvious must be affirmed.

B. Claim 4 of the '934 Patent

(a) Anticipation

Before the district court, Stora argued that Crucible's attempt to provoke an interfernce between the '934 patent and the application disclosure that resulted in the '518 patent, and Crucible's accompanying "same invention" arguments, were proof that the latter anticipated claim 4 of the '934 patent.[7] Crucible countered with the PTO's refusal to declare the interference.

7. Though the '518 patent issued after the '934 patent, it is prior art because the application on which it issued was filed earlier. 35 U.S.C. § 102(e); *see Hazeltine Research, Inc.* v. *Brenner*, 382 U.S. 252, 147 USPQ 429 (1965).

The district court correctly determined that the events relating to the interference were not controlling because Crucible admitted that size change uniformity is inherent in the alloy disclosed in the '518 patent. The district court found, however, that inherency of size change uniformity was alone insufficient, because "the existence of this inherency alone of merely one element of the claimed invention, does not fulfill the strict requirements of anticipation." 594 F. Supp. at 1262, 226 USPQ at 46.

Stora admits the correctness of the district court's finding that the '518 patent does not disclose hobs. That fact is itself sufficient to require affirmance of the district court's determination that the '518 patent does not anticipate claim 4 of the '934 patent.

(b) Obviousness

The district court distinguished Comstock, Frehser, *Antitropic Dimensional Changes due to Heat Treatment of Ledeburitic Chrome Tool Steels* (Frehser), and Lement, *Distortion in Tool Steels* (Lement), finding that that prior art disclosed processes and alloys all of which failed to achieve the properties produced by the process disclosed in the '934 patent. The court said that Comstock failed to "attain full, or substantially full, density *and* uniformly distributed fine carbide particles," and that Frehser and Lement did not "even [consider] the production of tool steel through a powder metallurgy process." 594 F.Supp. at 1263, 226 USPQ at 47.

With respect to the prior art represented by the '518 patent, the district court said:

> The principal benefit of the ['934] process is its elimination of the out-of-roundness traditionally char-

> acteristic in past methods of producing hobs. This, as we previously noted, is achieved through a hardening treatment phase which maximizes size chang uniformity, a property particularly essential for hobs because of the reduction of out-of-roundness and resultant increased dimensional stability. While we find that [the '518 patent] is limited to cutting tools, the ['934 patented] process is [sic, would have been] not obvious.

594 F. Supp. at 1263, 226 USPQ at 47.

After evaluating all of the prior art and the objective evidence, the court concluded that the '934 "process is [sic, would have been] not only nonobvious, but appears to be [sic, have been] revolutionary in its elimination of dimensional instability in hobs." *Id.*

Stora argues that the district court focused on the process disclosed and not on the product claimed in the '934 patent. When Stora made the same argument in connection with its motion to stay the injunction, the district court responded that Stora had argued that similarities in the processes evidenced obviousness in the resulting products, and that the court employed "process" in responding to those arguments of Stora. The court also pointed to the reference in its opinion to the invention of the '934 patent as a "powder metallurgy hob, a cutting tool." 226 USPQ at 843. In addition, the court began its initial opinion with the statement that both patents "protect powder metallurgy cutting tool products." 594 F. Supp. at 1250, 226 USPQ at 37.

The burden of proving facts requiring a conclusion of invalidity was on Stora. Having adopted a trial strategy and tactic involving comparison of the processes disclosed in the prior art and the '934 patent, Stora now seeks to

change horses. That it cannot do. First, it would simply be unfair to re-run the race. Second, Stora has not shown that the differences found in the processes by the district court would not serve to produce corresponding differences in the claimed product.

Nor has Stora shown that reversible error resides in the district court's failure to expressly find, as Stora asserts, that the only difference between the invention set forth in claim 4 and the '518 patent disclosure is a hob. The evidence cited in Stora's brief was fully considered by the district court and no basis appears for a conclusion that the court did not fully consider that evidence.

In sum, Stora simply failed to prove at trial facts requiring a conclusion that one skilled in the art and having the disclosure of the '518 patent before him would have found it obvious to have made the invention set forth in claim 4 of the '934 patent at the time it was made.

Stora bases a major argument on the undisputed fact that size change uniformity is an inherent property of the alloy disclosed in the '518 patent. That argument is unpersuasive when confronted by Stora's failure to establish at trial that that inherency would have been obvious to those skilled in the art when the invention of claim 4 was made. Inherency and obviousness are distinct concepts. *W. L. Gore & Associates* v. *Garlock, Inc.*, 721 F.2d 1540, 1555, 220 USPQ 303, 314 (Fed. Cir. 1983) (citing *In re Sporman*, 363 F.2d 444, 448, 150 USPQ 449, 452 1966)), *cert. denied*, 105 S. Ct. 172 (1984).

Similarly, Stora's argument that the district court failed to give full import to Crucible's disclaimer of claims 1 and 2 is without merit. First, it is based on conjecture respecting Crucible's reasons for the disclaimer (i.e., that Crucible

recognized invalidity of those claims). Second, it ignores the statutory provision that each claim must be separately presumed valid. 35 U.S.C. § 282. Third, as previously noted, claim 4 includes all of the limitations of claims 1 and 2 and must be viewed as though it had originally been an independent claim.

Conclusion on Nonobviousness of the Invention Set Forth in Claim 4

We have considered each of Stora's other arguments touching on the district court's validity conclusion and find them without merit. Because Stora has not discharged its burden on appeal, the portion of the judgment based on the conclusion that the invention set forth in claim 4 of the '934 patent would not have been obvious must be affirmed.

(2) Inequitable Conduct

The district court correctly determined that Stora had waived its inequitable conduct defense to validity at trial. 594 F. Supp. at 1264-65, 226 USPQ at 48; *see also* 226 USPQ at 844. Stora reserved that matter only as possible support for attorney fees in the event it prevailed before the district court. Having waived the assertion at trial, Stora may not resurrect it on appeal. *Cf. Laitram Corp.* v. *Cambridge Wire Cloth Co.*, 785 F.2d 292, 295, 228 USPQ, 935, 937 (Fed. Cir. 1986) (allegation of fraud cannot be raised for the first time in this court). Moreover, in its supplemental opinion, the court expressly found that the Comstock patent was not material and that Stora had therefore failed to carry its burden on inequitable conduct.

226 USPQ at 847. That finding has not been shown to have been clearly erroneous.[8]

(3) Increased Damages—Willful Infringement

In its cross-appeal, Crucible argues that the facts found by the district court mandated an ultimate finding of willful infringement and that such a finding would "[compel] an award of increased damages and attorney fees." The court did not make an express finding on whether Stora's infringement was or was not willful, but limited itself to saying it was unpersuaded that "the evidence including Dr. Hellman's memorandum is sufficient to constitute a basis for treble damages."

The underlying facts are undisputed, and the sole question at this point is whether an ultimate finding of non-willful infringement would be clearly erroneous in light of those underlying facts. If we determine that a finding of non-willfulness would be clearly erroneous, and that a finding of willfulness is dictated by the undisputed underlying facts, we do not thereby engage in *de novo* fact finding, for there are only two possibilities: the infringement here was either willful or it was not. If a finding that it was not would be clearly erroneous, the only alternative is a finding that it was. In that circumstance, a remand to the district court for the purely ministerial task of entering a necessary and foreordained finding serves no useful purpose and merely wastes judicial resources.

Before the district court, Crucible relied mainly on a February 5, 1973 internal memorandum of the chief tech-

8. Stora's allegation that Crucible's failure to cite the Comstock reference to the PTO constituted inequitable conduct was also rejected by the PTO. *See In re Holtz*, 224 USPQ 714 (Bd. App. 1984).

nical expert of Stora, Dr. Hellman. The memorandum was written after a meeting between Crucible and Stora officials, during which Crucible warned Stora that its products would infringe certain allowed claims, before issuance of the '518 patent, and long before Stora commenced its infringement in the United States. The memorandum read:

> *Summary:*
>
> Crucible maintains that additional patent claims, based on an old patent application, have now been approved in the *USA* and that these patent claims are so worded that we are infringing on them by selling ASP-steel in the USA. We have for now no possibilities for checking this, but must as a matter of course proceed [on the assumption] that it is true. A new search for ~~oppositions~~ prior art has been started and the material that has come to hand will be evaluated at the latest by April 15th. If enough solid ~~oppositions~~ prior art are found by them, we can bring an action against Crucible and begin to sell ASP-steel in the USA. If the new patent claims, on the other hand, should be judged to be ~~tenable~~ valid, we will be closed out of the American market for the foreseeable future.
>
> • • •
>
> In the USA and Canada, the conditions are more difficult than in other countries because of differences in the patent laws. In these other countries, we will sell ASP-steel without waiting for the results of the respective reports.
>
> • • •

"Stevens" USPat 3.561.934	All the claims refer to: (As) an *article* of manufacture, a metal body constructed of compacted particles of high speed tool or die steel composition. This protects, in other words, the product and he

> who imports such products to the USA infringes [on the patent]. We are of the opinion in the meantime, that the patent is *not tenable*. See the special memo on this.

* * *

Crucible made it fully clear that they will sue us for patent infringement as soon as they detect that we have begun to sell ASP-steel in the USA. Apparently they have given the same information to our potential customers in the USA. Further, they notified us that at least for the present they do not intend to sell licenses to anybody. If their product is successful, the American authorities can eventually force them to sell licenses to at least one company which is in a position to make a similar product. This possibility is, in the meantime, unsure and lies a long way in the future. On the other hand, Crucible declared itself willing to discuss a license agreement which would not only cover Sweden (!) a suggestion which was not answered.

American courts have divergent attitudes toward patents and if this question goes to court, it is important that we take the initiative so that we can choose the right court.

Up to now our efforts have naturally been concentrated on preparations to get the Stevens-patent declared invalid. The following *measures* are being taken now with the above mentioned new patent claims in mind:

1) Search for ~~oppositions~~ prior art in the American Patent Office (Curtis, Morris & Safford).

2) Search for ~~oppositions~~ prior art in the remaining patent literature (patent section, Falun).

3) Search for ~~oppositions~~ prior art in the technical literature (lab., Soderfors).

4) Evaluation of the found material. Shall be finished by April 15, 1973 at the latest.

Here, as in the other patent questions, we will work together with ASEA. In all likelihood, we will also turn to IIB (The Internatioanl Patent Institute in The Hague) for certain types of research.

If the evaluation gives the right result, we will request a "declaratory judgment action ~~(sic)~~"; that is, we will request that the Stevens-patent be declared invalid. The same measures will be taken against the new Holtz claims as soon as they are made public. As soon as we have filed the former suit, we can begin to sell ASP-steel in the USA but until then we must lie low. This will not involve any noteworthy delay in the introduction of ASP-steel as we must first build up a stock.

During the search for oppositions, we will not come to find directly lethal material, but instead we have to concentrate on finding 2 or at most 3 documents which taken together make it "obvious to the professional" that good powder steel can be made and how. An eventual trial will come to be decided on the credibility of the experts' testimony. Our American patent lawyer has guessed at the time and cost for such an action if a compromise were not to be reached: A judgment in the district court will in all likelihood take around two years and the costs will certainly be $50,000, perhaps up to $100,000 dollars, of which the main part will be spent at the beginning of the action and when the trial itself begins. After the appeal to the court of appeals, the judgment will be delayed a further 6-12 months and the costs will rise by 10 to 15 thousand dollars. We must count on having to pay our costs irrespective of the outcome. The damages that we can be assessed if we lose has been guessed to be 5 or possibly up to 10% of the value of the sales.

> If the evaluation of the forthcoming oppositions prior art should indicate that the new patent claims in the Holtz application are valid, then the American market is closed to us for the foreseeable future.[9]

* * *

The district court found that the memorandum: (1) was based on Stora's assumption that it would be infringing the allowed claims, as to which assumption Dr. Hellman stated "we have no possibilities for checking . . . ."; (2) assumed the patents valid and infringed and merely "charted a strategy to check patent validity; contest patent validity; and, in the process, to get [Stora's] products into the United States market;" and (3) "assessed the costs and prospects of litigation upon the further assumption that 'the evaluation give the right result.' " 594 F. Supp. at 1264, 226 USPQ at 48.

The district court also refused to award treble damages because it found that Stora litigated close patent issues saying those issues "presented substantial questions upon which there has been genuine debate and honest disagreement . . . ." 594 F. Supp. at 1264, 226 USPQ at 48. The court noted that awards of treble damages might "thwart good faith efforts to contest patent validity." *Id.* (citing *Yoder Brothers, Inc.* v. *California-Florida Plant Corp.*, 537 F.2d 1347, 1383, 193 USPQ 264, 296 (5th Cir. 1976), *cert. denied*, 429 U.S. 1094 (1977)). The court noted also that when Crucible told Stora of the patents, Stora replied that the patents were invalid in view of Comstock and a 1964 Holtz article. Concluding that Crucible had not overcome Stora's claims of good faith, the district court mis-

9. The quoted paragraphs are reproduced exactly as they appear in the translation set forth in the appendix.

takenly referred to § 284 instead of § 285 in its refusal to "find this to be such an 'exceptional case' under 35 U.S.C. § 284 (1982) [sic], to justify the award of treble damages." 594 F. Supp. at 1264, 226 USPQ at 48.

That the district court declined to impose increased damages that *may* accompany a finding of willful infringement does not mean that the court found the infringement not willful. *See, e.g., S. C. Johnson & Son, Inc.* v. *Carter Wallace, Inc.*, 781 F.2d 198, 201, 228 USPQ 367, 369 (Fed. Cir. 1986). Though the parties have proceeded on appeal as though the district court had found Stora's infringement not willful, all the district court decided was that it would not award treble damages. It appears that the court felt that if it found Stora's infringement willful it would have been required to award treble damages. If that be so, it may be said that the court implicitly found Stora's infringement not willful. If that implicit finding was made, it was clearly erroneous.

The district court did not have before it, if course, the guidance on the law of willful patent infringement provided by this court since the time of the trial. In *Underwater Devices*, this court stated:

> Where, as here, a potential infringer has actual notice of another's patent rights, he has an affirmative duty to exercise due care to determine whether or not he is infringing. Such an affirmative duty includes, *inter alia*, the duty to seek and obtain competent legal advice from counsel *before* the initiation of any possible infringing activity. [Citations omitted.]

Id. at 1389-90, 219 USPQ at 576 (emphasis in original).[10]

10. The determination referred to includes, of course, one on validity, there being no liability for infringement of invalid claims.

Though it is an important consideration, not every failure to seek an opinion of competent counsel will mandate an ultimate finding of willfulness. *King Instrument Corp.* v. *Otari Corp.*, 767 F.2d 853, 867, 226 USPQ 402, 412 (Fed. Cir. 1985), *cert. denied*, 106 S. Ct. 1197 (1986) (court "should always lok at the totality of the circumstances"). Conversely, that an opinion of counsel was obtained does not always and alone dictate a finding that the infringement was not willful. *See e.g.*, *Kori Corp.* v. *Wilco Marsh Buggies & Draglines, Inc.*, 761 F.2d 649, 656, 225 USPQ 985, 989 (Fed. Cir.), *cert. denied*. 106 S. Ct. 230 (1985); *Central Soya Co.* v. *George A. Hormel & Co.*, 723 F.2d 1573, 1576-77, 220 USPQ 490, 492-93 (Fed. Cir. 1983). In the present case, the totality of the circumstances, including the failure to seek advice of counsel, makes any finding of non-willfulness clearly erroneous and compels the only alternative finding, i.e., that Stora's infringement was willful.

On the undisputed facts of record, an ultimate finding that Stora's infringement was not willful would be "incompatible with the applicable findings [the court] clearly articulated" and would thus, as above indicated, be clearly erroneous. *CPG Products Corp.* v. *Pegasus Luggage, Inc.*, 776 F.2d 1007, 1015, 227 USPQ 497, 502 (Fed. Cir. 1985). Stora has not shown to have been clearly erroneous the underlying findings (e.g., that Stora proceeded with its infringement on the assumption, as stated in the memorandum and found by the district court, that the patents were valid and would be infringed). Those findings fully support the present determination that an ultimate finding of non-willfulness would be clearly erroneous.

Stora has not even asserted that it sought advice of counsel when notified of the allowed claims and Crucible's

warning, or at any time before it began this litigation. Stora's silence on the subject, in alleged reliance on the attorney-client privilege, would warrant the conclusion that it either obtained no advice of counsel or did so and was advised that its importation and sale of the accused products would be an infringement of valid U.S. patents.

The internal memorandum of Dr. Hellman, a non-lawyer, clearly shows that Stora intentionally undertook the risk of importing infringing products in the hope that a court would hold the patent invalid, or that Crucible would grant a license to escape litigation. The '518 patent issued almost a full year before Stora began its infringement in the United States. The district court's characterization of the memorandum as "merely [evidencing] an aggressive strategy of contesting patents" may relate to a reason for infringing; it cannot serve as a basis for finding Stora's infringement not willful. That Stora's officials told Crucible, as part of that "strategy", that they thought the patents invalid in view of certain prior art cannot substitute for the advice of competent counsel before the onset of infringement and is contrary to Stora's own internal memorandum.[11]

If infringement be accidental or innocent, increased damages are not awardable for the infringement. If infringement be willful, increased damages "may" be

11. We do not here evaluate Stora's strategy. An aggressive strategy may or may not be a factor in a decision to deny or award increased damages. An "agressive strategy" unsupported by any competent advice of cousel, thorough investigation of validity and infringement, discovery of more pertinent uncited prior art, or similar factors, is the type of activity the reference in the patent law to increased damages seeks to prevent. An alleged infringer who intentionally blinds himself to the facts and law, continues to infringe, and employs the judicial process with no solidly-based expectation of success, can hardly be surprised when his infringement is found to have been willful.

awarded at the discretion of the district court, and the amount of increase may be set in the exercise of that same discretion.

Our indication that Stora's infringement must on this record be found willful does not, therefore, mandate an award of increased damages. The district court has not determined whether, if Stora's infringement were found willful, it would deem increased damages appropriate. Nor has it determined what level of increase, if any, would be appropriate. We therefore express no view on whether the district court, in the exercise of its discretion, should or should not award increased damages as a part of its determination of the damage issues it reserved for later trial. *See CPG Products Corp.*, 776 F.2d at 1015, 227 USPQ at 502.

(4) Attorney Fees

Having determined that this case was not "exceptional", the district court declined to award treble damages and did not mention either § 285 or attorney fees *per se*. Willfulness of infringement relates to the accused infringer's conduct in the marketplace. Because that conduct may be seen as producing an unnecessary and outcome-certain law suit, it may make the case so exceptional as to warrant attorney fees under § 285. Similarly, bad-faith displayed in pretrial and trial stages, by counsel or party, may render the case exceptional under § 285.

When a court declines to award attorney fees on the basis of a determination that a case is not exceptional, the fact findings underlying that determination are reviewed under the clearly erroneous standard. When the determination is that a case is exceptional, the election to grant or deny attorney fees is reviewed under the abuse of discre-

tion standard. *Reactive Metals and Alloys Corp.* v. *ESM, Inc.*, 769 F.2d 1578, 1582-83, 226 USPQ 821, 824 (Fed. Cir. 1985).

We join the district court's concern that awards of increased damages and attorney fees not be allowed to thwart efforts to challenge the validity of patents believed in good faith to be invalid. A party who has obtained advice of competent counsel, or otherwise acquired a basis for a *bona fide* belief that a patent is invalid, can be said to serve the patent system in challenging that patent in a law suit conducted fairly, honestly, and in good faith. Such a party should not have increased damages or attorney fees imposed solely because a court subsequently holds that belief unfounded, particularly when the issues may be fairly described as "close".

As above indicated, a court may find that in all the circumstances an infringement was so willful as to justify a determination that a case is exceptional, and a court may thereupon exercise its discretion to award attorney fees to the patentee. *See Standard Oil Co.* v. *American Cyanamid Co.*, 774 F.2d 448, 455, 227 USPQ 293, 298 (Fed. Cir. 1985); *Milgo Electronic Corp.* v. *United Business Communications, Inc.*, 623 F.2d 645, 667, 206 USPQ 481, 498 (10th Cir.), *cert. denied*, 449 U.S. 1066 (1980). Because there is here no express finding on whether Stora's infringement was so willful as to render the case exceptional, we leave the question in the present case to the district court's determination and discretion in conjunction with the reserved damage trial.

Respecting other possible bases for awarding attorney fees, the district court, in discussing treble damages, found that Stora's claims of good faith were not overcome by the

evidence, and that the patent validity issue presented substantial questions on which there had been honest disagreement in the PTO and at trial. Those findings would be applicable in considering a request for attorney fees under § 285. Because the district court did not expressly award or refuse attorney fees under § 285, there is no basis for this court's review of those findings. There having been no denial of attorney fees *per se* under § 285, we leave that question also to such further proceedings as the district court may deem appropriate.

(4) The Injunction[12]

It is undisputed that Kloster was created immediately after conclusion of the trial and long before judgment, and that, before the court's decision, it purchased the facility Stora used to manufacture the products found to infringe. The effort of Stora to evade the effect of any possible injunction by divesting itself of its facilities for producing infringing products, the effort of Kloster to evade the injunction and thus gain freedom to continue the infringement and force Crucible to a second lawsuit, and the continuation of those efforts by appeal to this court, do not reflect the highest ethical standards of either the business community or the legal profession.

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12. The injunction reads:

> Each of the defendants, their officers, agents, servants, employees, successors in interest and assigns, and any other person, corporation, or organization acting in concert with them is hereby permanently enjoined and restrained during the life of the respective U. S. patents identified above from the making, using or selling of products infringing claim 30 of U. S. Patent No. 3,746,518 or claim 4 of U. S. Patent No. 3,561,934, and from inducing or contributing to the making, using or selling of such products.

On September 4, 1984, i.e., fifteen days before the district court issued its opinion, Crucible moved to join Kloster as a party pursuant to Fed. R. Civ. P. 19(a) and 25(c).[13]

The court's opinion issued September 19, 1984, indicated that infringement by Stora and its "successors in interest and assigns" would be enjoined. On October 5, 1984, Kloster appeared at a status conference and argued that it should not be joined as a party and that "successors in interest and assigns" should be deleted from the proposed injunction. On October 11, 1984, the court issued its injunction enjoining infrinegment by Stora and its "successors in interest and assigns." The court deemed it unnecessary to decide the joinder question. Kloster moved to modify the injunction by deleting "successors in interest or assigns" or by specifically excluding Kloster. In denying the motion, the court cited *Regal Knitwear Co.* v. *National Labor Relations Board*, 324 U.S. 9 (1944) as authority for its use of "successors in interest and assigns." 226 USPQ at 846.

Kloster was not a party when the judgment was entered. Nonetheless, because it must be deemed a successor in interest or an assign, it is bound by the injunction and may for that reason appeal the refusal to modify it. *See* 9 J. Moore, B. Ward & J. Lucas, *Moore's Federal Practice* ¶ 203.06, at 3-23 (1985); *see, e.g., Zenith Radio Corp.* v. *Hazeltine Research, Inc.*, 395 U.S. 100, 108-112, 161 USPQ 577, 580-82 (1969); *see also United States* v. *LTV Corp.*, 746 F.2d 51, 53-54 n. 5 (D. C. Cir. 1984).[14]

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13. Kloster at no time sought to intervene under Fed. R. Civ. P. 24(a).

14. Having neither intervened before the trial court nor argued that Stora is incapable of contesting the merits on appeal, Kloster is without standing to appeal from the judgment on the merits. The brief it filed on the merits accordingly been disregarded.

Kloster attempted to carry water on both shoulders before the district court. It effectively asserted it was not bound, when it contested joinder, declined intervention, and sought specific exclusion. It effectievely asserted that it was bound, when it sought modification of the injunction, because absent such assertion Kloster would lack standing to contest the injunction's terms. In all events, the district court correctly intended that Kloster be bound by the injunction.

At the status conference, the court said, "the most significant feature of Rule 25(c) is that it does not require that anything be done after an interest has been transferred. The action may be continued by or against the original party and the judgment will be binding on his successor in interest, even though he is not named."[15] (Quoting 7A C. Wright & A. Miller, *Federal Practice and Procedure*, § 1958, at 664 (1972); *see also*, *Minnesota Mining & Manufacturing Co. v. Eco Chem, Inc.*, 757 F.2d 1256, 1263-64, 225 USPQ 350, 354-55 (Fed. Cir. 1985) (joinder merely a determination that transferee's presence would facilitate conducting the litigation)).

On appeal, Kloser says that the district court "sought to evade the limitations" of Fed. R. Civ. P. 65(d)[16] when it inserted "successors in interest and assigns." Kloster quotes from *Regal Knitwear Co.*, 324 U.S. at 14: "The terms 'successors and assigns' in an enforcement order of

15. Thus it was not necessary that the court rule on Crucible's motion to join Kloster.

16. Rule 65(d) provides:

> Every order granting an injunction . . . is binding only upon the parties to the action, their officers, agents, servants, employees, and attorneys, and upon those persons in active concert or participation with them who receive actual notice of the order by personal service or otherwise.

course may not enlarge its scope beyond that defined by the Federal Rules of Civil Procedure." Kloster disregards and distorts the thrust of *Regal Knitwear Co.*, in which the Supreme Court affirmed a *denial* of a motion to strike "successors and assigns" and said that "successors and assigns" may *not* be impermissible under Rule 65(d) and *may* be effective to bind those in privity with the defendant. In *Regal Knitwear Co.*, the Court did not have a successor or assignee before it. In *Golden State Bottling Co.* v. *National Labor Relations Board*, 414 U.S. 168, 177-80 (1973), it affirmatively held that the successor party there before it was subject to the enforcement order involved, and went on to clarify the absence of conflict between Rule 65(d) and orders binding successors and assigns.

In *Regal Knitwear Co., following* the sentence quoted by Kloster, the Court wrote:

> Successors and assigns may, however, be instrumentalities through which defendant seeks to evade an order or may come within the prescription of persons in active concert or participation with them in violation of an injunction. If they are, by that fact they are brought within the scope of contempt proceedings by the rules of civil procedure.[17]

324 U.S. at 14. The Court stressed that the emphasis "is not merely to succession, but to a relation between the defendant and the successor which might of itself estab-

17. Quoting part of a statement out of context, while ignoring a portion that totally undermines the proposition for which the quote was offered, reflects a reprehensible and unprofessional dereliction of the duty of candor owed the court. *See* Model Rules of Professional Conduct Rule 3.3 (1983); *accord* Model Code of Professional Responsibility DR 7-102(A)(2), DR 7-106(B)(1) (1981).

lish liability within the terms of Rule 65." 324 U.S. at 15. The relation here is not disputable. Kloster is the successor-operator of Stora asset used to produce infringing products.

Kloster argues, however, that the district court "avoided giving any consideration to the relationship" between Kloster and Stora, did not "find" it in privity with Stora, did not give it a chance to show it was not in privity, and cannot bind it with Stora solely because it purchased Stora's infringing facility, citing an agreement between Kloster and Stora that Kloster accepted no liability for Stora's infringement. Kloster argues that it cannot be bound because it was not a party, disregarding its resistance to Crucible's motion to join it. Private agreements between Kloster and Stora are irrelevant. Kloster also argues that it should be entitled to litigate the case on the merits before being enjoined. The arguments are spurious.

Courts have repeatedly found privity where, after a suit begins, a nonparty acquires assets of a defendant-infringer. *See, e.g., Brunswick Corp.* v. *Chrysler Corp.*, 408 F.2d 335, 338, 161 USPQ 65, 67 (7th Cir. 1969); *J. R. Clark Co.* v. *Jones & Laughlin Steel Corp.*, 288 F.2d 279, 280, 129 USPQ 97, 98-99 (7th Cir.), *cert. denied*, 368 U.S. 828 (1961); *Alb, Inc.* v. *Noma Lites, Inc.*, 231 F.2d 662, 663, 109 USPQ 26, 27 (2d Cir. 1956). The applicable reasoning was well illustrated in *J. R. Clark Co.*:

> If a third party may thus come into the acquisition of rights involved in pending litigation without being bound by the final judgment, and require a suit de novo in order to bind him, he might, pending that suit,

> alienate that right to another with the same result, and a final decree bearing fruit could never be reached.

288 F.2d at 280, 129 USPQ at 98 (*quoting G. & C. Merriam Co.* v. *Saalfield*, 190 F.2d 927, 932 (6th Cir. 1911)).

Nowhere does Kloster appear to recognize that it can avoid the injunction by simply refraining from infringement. That it desires to continue Stora's infringement appears the only possible basis for its strenuous effort to evade the injunction.

The district court's denial of Kloster's motion to modify the injunction is affirmed.

CONCLUSION

The judgment refusing to hold invalid claim 30 of the '518 paatent and claim 4 of the '934 patent, and refusing the inequitable conduct defense, is affirmed. To the extent that the district court's refusal of treble damages rested on an implicit finding that Stora had not willfully infringed, that finding was clearly erroneous, and the request for increased damages and attorney fees is remanded. The denial of Kloster's motion to modify the injunction is affirmed.

AFFIRMED IN PART AND REMANDED IN PART.

Opinion of United States District Court, W.D. Pennsylvania

CRUCIBLE, INC., a Delaware corporation,
Plaintiff,

v.

STORA KOPPARBERGS BERGSLAGS AB, a Swedish corporation, and Uddeholms AB, a Swedish corporation,
Defendants.

STORA KOPPARBERG CORPORATION, a New York corporation, and Uddeholm Steel Corporation, a New York corporation,
Plaintiffs,

v.

CRUCIBLE, INC., a Delaware corporation,
Defendant.

Civ. A. Nos. 74-917, 74-1062.

Sept. 19, 1984.

Ford F. Farabow, Jr., Laurence R. Hefter, Michael C. Elmer, Allen M. Sokal, Finnegan, Henderson, Farabow, Garret & Dunner, Washington, D.C., Frederick J. Francis, Meyer, Unkovic & Scott, Pittsburgh, Pa., for plaintiff Crucible, Inc.

Stuart A. White, Crutis, Morris & Safford, New York City, John M. Webb, Webb, Burden, Robinson & Webb, Paul J. Leventon, Leventon & Leventon, Pittsburgh, Pa., for defendants.

OPINION

DIAMOND, District Judge.

In these consolidated suits, plaintiff Crucible, Inc. (hereafter "plaintiff" or "Crucible") seeks to enforce claim 30 of U.S. Patent No. 3,746,518 (hereafter sometimes "the *Holtz* patent") and claim 4 of U.S. Patent No. 3,561,934 (hereafter sometimes "the *Steven* patent") against a group of corporately related defendants, Stora Kopparberg Corporation, Uddeholm Steel Corporation, Stora Kopparbergs Bergslags AB and Uddeholm AB (hereafter collectively referred to as "defendants" or "Stora/Uddeholm" or "Stora"). Crucible seeks an injunction against sales of Stora/Uddeholm's infringing products (hereafter "ASP" products) and a determination of willful and intentional infringement. Related antitrust and damage issues have been severed for a later trial.

The *Holtz* and *Steven* patents protect power metallurgy cutting tool products. Crucible contends that *Holtz* represents a powder mettallurgy cutting tool break-through because *Holtz* allegedly achieved both full density and a superior microstructure including a uniform distribution of ultrafine carbides less than 3 microns in size, which combination plaintiff alleges had eluded all prior art investigators. *Steven* teaches a so-called hob having superior size change uniformity, a long-standing problem in the hob industry, according to the plaintiff.

There are four general issues that must be decided with respect to *Holtz* claim 30:

1. Is it valid?
2. Is it infringed?

3. Is its infringement willful and intentional?

4. Was fraud committed during prosecution of the *Holtz* patent?

The defendants contend that the specific issues, which they refer to as the "four dominant issues," are:

1) Is claim 30 restricted to cutting tools?

2) Is 3 microns a critical carbide size?

3) Are ASP powders a supersaturated solid solution?

4) Is HIPing equivalent to hot-working?

With respect to validity, this litigation was stayed for almost six years so that the United States Patent and Trademark Office (hereafter sometimes "PTO") could rule on virtually the same validity issues in connection with a subsequent related *Holtz* application, which was contested by Stora/Uddeholm in *inter partes* proceedings before the PTO. At trial, Stora/Uddeholm agreed that the PTO Board of Appeals decision on patentability should be accorded "great weight." Agreed Finding 9. In addition, our ruling on the fraud issue has been delayed pending a decision of the PTO Board of Appeals, where the parties to the case *sub judice* litigated, inter alia, the issue of fraud or gross negligence in the prosecution of the *Holtz* patent. The PTO Board of Appeals rendered its decision on April 25, 1984, finding insufficient evidence of fraud or of culpability under 37 C.F.R. 1.56 (1983). *Ex Parte Frederick C. Holtz, Jr.*, Appeal No. 551-61 (PTO Board of Appeals, April 25, 1984).

The only issue with respect to *Steven* claim 4 is its validity, because all other issues, including infringement, have been admitted by defendants.[1]

1. Plaintiff's Exhibit 72; Agreed Conclusion of Law 13; Agreed Finding of Fact 109.

For the reasons set forth below, the court concludes that both patents are valid and have been infringed by defendants.[1A]

I.

Holtz Patent

Claim 30 of the *Holtz* patent states:

> A consolidated integral alloy body which is substantially fully dense formed of a hot worked supersaturated solid solution of an inherently alloying composition said alloy body consisting essentially of a continuous metallurgical phase with a uniformly disbursed hard phase of minute dispersed hard phase particle sizes that are substantially entirely less than three microns in maximum dimension said alloying composition essentially by weight from about .5% to about 5% carbon at least 10% of a hard phased forming element selected from the group consisting of Cr, W, Mo, Ti, Ta, Cb, Zr, Hf, V, and Al, and mixtures thereof and the remainder base metal and incidental impurities, wherein said base metal is selected from the group consisting of cobalt, iron and nickel, and wherein the total amount of base metal is at least 30%.

Plaintiff contends that Mr. Holtz by virtue of this claim had invented a revolutionary process of producing cutting tool steel in that through this process he was able to achieve an alloy which had full density and fine carbide size, the combination of which substantially improved the overall toughness, hardness, fabricability, grindability and wear resistance of high-speed cutting tools made from that alloy.

1A. This opinion constitutes the court's findings of fact and conclusions of law. *See* Fed.R.Civ.P. 52(a).

The defendants attack the *Holtz* invention on several grounds. First, the defendants claim that the *Holtz* invention is unpatentable for the reason that it was anticipated by an article entitled "Progress Report on Hot Forging Pre-Alloyed Metal Powders" published in 1952 in the publication *Precision Metal Molding,* Vol. 10, Nov. 10, 1952, by Lawrence Mott ("Mott") and by the *Reen I* invention is unpatenable for the reason that it was antici- 1964. Second, that the claim description in claim 30 is invalid under 35 U.S.C. § 112 (1982) and cannot be restrictively interpreted to be limited to cutting tools. Third, the defendants contend that the *Holtz* patent was obvious in light of the prior art and, therefore, invalid under 35 U.S.C. § 103 (1982). Finally, the defendants contend that the *Holtz* invention is invalid because it constitutes double patenting. With respect to infringement, defendants have stipulted, with two exceptions, to infringement of the elements of *Holtz* claim 30 by their ASP-steel products, contesting only that their products are formed by hot working and from a supersaturated solid solution.[2]

A.

Validity

Presumption of Validity

Under 35 U.S.C. § 282 (1982), a patent is afforded a presumption of validity. *Trio Process Corp. v. Goldstein's Sons, Inc.*, 461 F.2d 66, 70 (3d Cir.), *cert. denied* 409 U.S. 997, 93 S.Ct. 319, 34 L.Ed.2d 262 (1972), *cert. denied* 449 U.S. 827, 101 S.Ct. 91, 66 L.Ed.2d 30 (1980); *L.D. Schreiber Cheese Company v. Clearfield Cheese Company*, 540 F.Supp.

2. Agreed Finding of Fact 51.

1128, 1134 (W.D.Pa.1982), *aff'd* 716 F.2d 891 (3d Cir.1983). One who challenges validity has the burden of proving invalidity by a standard of clear and convincing proof. *Id.; Northern Engineering and Plastics Corp. v. Eddy,* 652 F.2d 333 (3d Cir.1981), *cert. denied* 454 U.S. 1146, 102 S.Ct. 1009, 71 L.Ed.2d 299 (1982); *Universal Athletic Sales Co. v. American Gym, Recreational and Athletic Co.,* 546 F.2d 530 (3d Cir.1976), *cert. denied* 430 U.S. 984, 97 S.Ct. 1681, 52 L.Ed.2d 378 (1977).

The plaintiff here contends that the statutory presumption of validity is strengthened where the Patent Office specifically has considered the prior art relied upon by the party challenging the patentability in a court action, *Universal,* 546 F.2d at 540 n. 28; where it cannot be demonstrated that any uncited prior art was more pertinent than that cited by the patent examiner, *General Battery Corp. v. Gould, Inc.,* 545 F.Supp. 731, 740 (D.Del.1982); *see also Otto v. Koppers Company,* 246 F.2d 789 (4th Cir. 1957), *cert. denied* 355 U.S. 939, 78 S.Ct. 427, 2 L.Ed.2d 420 (1958); where the party who challenges validity participated fully in an *inter partes* proceeding before the PTO and raised virtually the same contentions and prior art before the PTO that the party asserts in the court proceedings; and where the patent claims have been reviewed and affirmed by the PTO Board of Appeals. *CMI Corp. v. Metropolitan Enterprises, Inc.,* 534 F.2d 874, 880 (10th Cir.1976).

However, as defendants correctly note, the statutory presumption of validity attaching to an issued patent may be weakened where it can be shown to the court that relevant prior art was not examined by the PTO. *Allegheny Drop Forge Company v. Portec, Inc.,* 541 F.2d 383, 384 n.

3 (3d Cir.1976); *Black & Decker Manufacturing Company v. Disston, Inc.*, 436 F.Supp. 1175, 1179 (W.D.Pa.1977); *Schreiber Cheese*, 540 F.Supp. at 1134. This weakening of the statutory presumption of validity may be ameliorated where the prior art which was omitted is not as relevant or pertinent as that which was examined by the PTO and where it is clear that the PTO was aware of the alleged omission of the prior art. *See generally Aluminum Co. of America v. Amerola Products Corp.*, 552 F.2d 1020, 1024-5 (3d Cir.1977).

The proceedings in the PTO pertaining to this case were long and tortuous. The *Holtz* patent application was filed on February 26, 1965, and was issued on July 17, 1973. During the course of this litigation, plaintiff alerted defendants to a pending patent application for a continuation on the *Holtz* invention (the *Holtz* grandchild application) and invited defendants to paticipate in an *inter partes* PTO proceeding to contest the issuance of the continuation patent. The defendants filed a protest against the continuation grandchild application on December 1, 1976, and since that time have participated fully and completely in PTO protest proceedings.[3]

The *Holtz* grandchild patent application was originally rejected by a patent examiner. On August 6, 1981, a panel of the PTO Board of Appeals reversed that ruling and ruled that the patent application was valid and that the patent should be issued. Subsequently, a second patent examiner ruled that the patent was invalid on the basis of the failure of the inventor-applicant for the *Holtz* Patent to cite prior art, specifically the *Comstock* reference, British Patent No. 781,083, complete specification published Au-

3. Agreed Finding of Fact 9.

gust 14, 1957. On October 7, 1982, this decision was made a final rejection of the *Holtz* grandchild application. That decision was appealed to the PTO Board of Appeals, which, as we indicated earlier, reversed the rejection on April 25, 1984.

While we apply the statutory presumption of validity under 35 U.S.C. § 282, the question remains whether that presumption must be weakened in light of the fact that the plaintiff concedes that the *Comstock* reference was not cited to the PTO in the original *Holtz* application.[4] The extent to which the presumption may be weakened depends upon comparison of the *Comstock* reference to the art actually cited by the Patent Office. *Aluminum Co. of America*, 552 F.2d at 1025.

Comstock v. The Prior Art Disclosed at the Patent Office

The plaintiff contends that the prior art before the PTO, i.e., Mott and *Reen I*, were more pertinent to the *Holtz* application than the *Comstock* reference, which plaintiff contends would have been cumulative and not material.

Comstock disclosed a process for cutting tool alloys made by powder metallurgy through a process which required: atomization of a powder; cold-compacting that powder; heating the powder into cold-compacting condition; and, then working that product to achieve densification.[5] In comparison, *Reen I* disclosed a process which produced a water-atomized powder from a pre-alloyed powder, which was subjected to a hydrogen atmosphere in an attempt to remove the oxide which resulted from the water atomizing process, followed by a cold compacting

4. Defendants' Exhibit GGG(2); See generally plaintiff's post-trial brief at 84-98.

5. Plaintiff's Exhibit 29; Tr. at 217.

process, then a sintering process at a high temperature, and finally a series of cold working and sintering steps to achieve a final product for use in cutting tools.[6] The Mott reference[7] deals with high temperature *structural* alloys, in particular X40 cobalt.[8] Mott lists four basic steps, which amount to a forging and hot-coining process with the stated purpose of achieving a completely dense material from an initial structure of complete porosity.

It is defendants' position that the *Comstock* reference is indisputably anticipatory of *Holtz* claim 7 and, therefore, material to the *Holtz* invention as a whole.[9] However, the court notes that claims 7, 21, and 22 of the *Holtz* patent are virtually identical to claims 7, 21, and 22 of the *Reen II* reference, U.S. Patent No. 3,244,506, and, therefore, more closely related to *Reen I* than to *Comstock*.[10] For this reason and for the reason that there was substantial prior art before the PTO, the court concludes in light of the *Aluminum Co. of America* standard that the failure to cite the *Comstock* reference does not materially weaken the statutory presumption of validity attaching to the *Holtz*

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6. Plaintiff's Exhibit 62; Tr. at 228.

7. Plaintiff's Exhibit 62.

8. Tr. at 1585.

9. Defendants' post-trial brief at 49.

10. *Holtz* claims 7, 21, and 22 originated in *Reen II* and were copied by *Holtz* to provoke an interference, which *Holtz* won. Plaintiff's Exhibit 4 at 48, 50, 133, 145-46, 156-57, 162. Crucible's Post-trial brief at 87. See also *Ex Parte Frederick C. Holtz, Jr.*, *supra*, at 18, where the Board states:

> It is significant to note that claims 7, 21, and 22 were copied from U.S. Patent No. 3,244,506, which issued as a continuation-in-part application of Reen after a terminal disclaimer had been filed with respect to Reen. This supports Appellant's position that he always considered Reen more pertinent than Comstock.

patent.[11] In addition, the April 25, 1984, decision of the PTO Board of Appeals in *Ex Parte Frederick C. Holtz, Jr.*, *supra*, fully supports the foregoing analysis and conclusion.

Anticipation

One element necessary to sustain patent validity is novelty. *Eli Lilly & Co. v. Premo Pharmaceutical Laboratories, Inc.*, 630 F.2d 120 (3d Cir.), *cert. denied* 449 U.S. 1014, 101 S.Ct. 573, 66 L.Ed.2d 473 (1980). This requirement has been codified in 35 U.S.C. § 102 (1982) and is closely related to the nonobvious requirement of 35 U.S.C. § 103. The standard for lack of novelty, for "anticipation," is one of strict identity. To anticipate a claim for a patent, a single prior source must contain all of the essential elements of that claim. 1 D. Chisum, *Patents* § 3.02 (1978). The classic test of anticipation is set forth in *Knapp v. Morss*, 150 U.S. 221, 14 S.Ct. 81, 37 L.Ed. 1059 (1893), and it provides "that which infringes, if later, would anticipate if earlier." *Id.* at 228, 14 S.Ct. at 84, (quoting *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537, 9 S.Ct. 389, 392, 32 L.Ed. 738 (1889)).

In addition to the novelty requirement, § 102 provides certain statutory bar or loss of right provisions. Of specific relevance in this case is § 102(b), which the defendants cite as invalidating the *Holtz* patent at suit.

§ 102 provides in its pertinent part:

> A person shall be entitled to a patent unless—
>
> • • •
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one

11. See generally Plaintiff's Exhibit 4; Plaintiff's Exhibit 13; plaintiff's post-trial brief at 87-8.

> year prior to the date of the application for patent in the United States . . . .

The defendants make several contentions with respect to statutory bar and anticipation. First, the defendants contend that the Mott article "Progress Report on Hot Forging Pre-Alloyed Metal Powders," *supra*, provides a basis for the invalidation of the *Holtz* patent. Defendants contend that § 102(b) applies not only to prior publication of the invention in suit, but also to the prior publication of an invention with substantial identity to the patent in suit. *Application of Schaumann*, 572 F.2d 312, 317 (CCPA 1978); *Amphenol Corp. v. General Time Corp.*, 397 F.2d 431 (7th Cir. 1968).

Defendants also claim the *Holtz* patent was anticipated by the *Reen I* reference. 35 U.S.C. § 102 provides in this regard that:

> A person shall be entitled to a patent unless—
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

As noted earlier in order to establish anticipation, defendants must show that *Reen I* contains all of the elements of *Holtz*.

The principal difference between *Reen* and the *Holtz* patent cited by the PTO Board of Appeals is that *Reen* pertains to a method of obtaining consolidated heat hardenable steels that is not necessarily restricted to cutting tools steels.[12] In contrast, *Holtz* sought to achieve the desired toughness for cutting tools and was primarily concerned

12. Plaintiff's Exhibit 9 at 11.

with attaining the combination of full density and a carbide size of 3 microns, facts which the plaintiff cites as evidence that the *Holtz* invention was limited to cutting tool steel.[13]

To rebut this argument, defendants point to several alleged common factors in the *Reen* and the *Holtz* processes. Defendants claim that the *Reen* process could be formed by hot working; that the chemical composition of the *Reen* material falls within the range of claim 30 of the *Holtz* application; that while *Reen* does not use a supersaturated solution, plaintiff attaches no importance to that element in *Holtz* claim 30; and, finally, that both *Reen* and *Holtz* were concerned with substantial or almost full density in addition to fine and disbursed carbides.

Mr. Thomas Neumeyer, one of plaintiff's experts, opined that *Reen* was unable to achieve full density without sacrificing fine carbide size.[14] Neumeyer also testified that while in his opinion the *Reen* process could be used to produce cutting tools,[15] it would produce an inferior cutting tool due to the chemical inhomogeneity inherent in the *Reen* process resulting in a lack of full density.[16]

Further, Dr. Hellman, an employee and chief technical expert of defendants, testified that a particular carbide size, 3 microns, was critical to the production of acceptable tool steel.[17] As noted by the PTO Board of Appeals, while *Reen* suggested full density and uniform distribution of

13. *Id.* at 8.

14. Tr. at 280.

15. Tr. at 260-261.

16. Tr. at 261.

17. Plaintiff's Exhibit 120; Tr. at 1010; Plaintiff's Exhibit 9 at 10.

carbides, there is nothing in *Reen* which indicates the actual size of the carbides.[18]

For these reasons, and in light of the strict requirements of the test for anticipation, the court finds that *Holtz* was not anticipated by *Reen*.

Specification

Defendants maintained at trial and indeed, argued that it was one of the critical issues in the case, that the *Holtz* patent claim by its language could not be restricted to cutting tool steel. In support of their position, defendants offered several arguments to show an intent by *Holtz* not to restrict claim 30 to cutting tool steel. The point of this contention is that the patent, having not been restricted to cutting tool steel, was anticipated by *Reen* (see the above section), and/or that the patent is infirm under 35 U.S.C. § 112[19] which requires that a patent claim be sufficiently descriptive to alert all those in the industry as to what constitutes infringement.

In response, plaintiff offered the testimony of Mr. Neumeyer and Dr. Tien. During his direct examination Mr. Neumeyer listed the essential elements of a metal based

18. Plaintiff's Exhibit 9 at 12.

19. 35 U.S.C. § 112 provides in part:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.
>
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

cutting tool. He stated that the two essential elements are the metal base or matrix and the alloyed carbides for the so-called hard phase.[20]

Dr. Tien testified that the requirements for high temperature structural alloys and metal base cutting tools differed and that the principal difference was the ultimate tensile strength as tested through bend tests.[21] Dr. Tien further stated that the *Holtz* patent did not describe high temperature structural alloys and he set forth the bases which led him to conclude that the *Holtz* process described tool steel properties with special attention to hardness as opposed to high temperature structural alloys.[22] With regard to tool steel density, Dr. Tien contrasted the *Holtz* invention with the type of steel in a high temperature structural alloy which would be used, for example, in jet engines. He stated that porosity; i.e., lack of density, creates problems with metal fatigue and that in his opinion tool steels were more demanding than structural alloys. According to Dr. Tien, the combination of substantial full density with a uniformly dispersed hard phase described in the *Holtz* patent clearly indicates that Mr. Holtz contemplated a patent for the production of metal based cutting tools rather than structural alloys, and the court so finds.

In addition, the plaintiff offered the testimony of Mr. Holtz who, as inventor, stated that his invention was clearly limited to cutting tools,[23] a fact proven by the stated purpose of the U.S. Air Force contract commissioning the re-

20. Tr. at 85-6.

21. Tr. at 1567.

22. Tr. at 1574.

23. See Tr. 1294-1498.

search by him which resulted in the invention in suit.[24] Finally, plaintiff points out that as a matter of law a patent claim must be interpreted in such a way as to protect its validity, citing *Smith v. Snow*, 294 U.S. 1, 55 S.Ct. 279, 79 L.Ed. 721 (1935).

On balance, after a review of all of the evidence, the court is convinced that claim 30 indeed is limited to cutting tool steel and is sufficient under 35 U.S.C. § 112. This conclusion is based upon an interpretation of claim 30 in light of the patent specifications, the file wrapper and the prior art as well as the testimony of Mr. Neumeyer, Dr. Tien, and Mr. Holtz.[25] We note especially the fact that those learned in the prior art for a long time had been attempting to achieve the necessary uniform distribution of fine carbides in a fully dense material.[26] Also, the *Holtz* research commissioned by the Air Force was for the development of this desired superior tool steel[27] and the testing done on the *Holtz* product; i.e., cutting and transverse rupture tests, evidence this limitation.[28]

Obviousness

Under 35 U.S.C. § 103, a patent may be invalid if it is a patent on an "obvious invention". Section 103 provides:

> § 103. Conditions for patentabiilty; non-obvious subject matter.
>
> A patent may not be obtained though the invention is n[illegible] identically disclosed or described as set forth in

24. Tr. at 1308.

25. See Tr. at 1427.

26. In reaching this conclusion, we accept plaintiff's proposed finding 17 and necessarily reject defendants' proposed counterfinding 17.

27. Tr. at 1307-8; Plaintiff's Exhibit 68.

28. Tr. at 1361; Plaintiff's Exhibit 69.

> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. . . .

In *Graham v. John Deere Co.*, 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966), the Court set forth the standard to be used in determining obviousness under § 103:

> Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.

Id. at 11, 86 S.Ct. at 690; *Rengo Co. Ltd. v. Molins Machine Company*, 657 F.2d 535, 542 (3d Cir.), *cert. denied* 454 U.S. 1055, 102 S.Ct. 600, 70 L.Ed.2d 591 (1981). Against this standard, we examine the evidence presented in the trial of this case with reference to the *Holtz* patent.

Prior Art

In determining the question of obviousness, the court is bound to consider all prior art. *New York Scaffolding Co. v. Liebel-Binney Construction Co.*, 254 U.S. 24, 41 S.Ct. 18, 65 L.Ed. 112 (1920). Prior art includes the knowledge,

acts, descriptions and patents set forth under 35 U.S.C. § 102. *Mooney v. Brunswick Corp.* 489 F.Supp. 544 (E.D. Wisc.1980), *aff'd* 663 F.2d 724 (7th Cir.1981). Pertinent prior art has been defined as that which one of ordinary skill in the art reasonably would be expected to look to for a solution to the problems which the patented article solves. *See Tokyo Shibaura Electric Ltd. v. Zenith Radio Corp.*, 404 F.Supp. 547, 556 (D.C.Del.1975), *aff'd* 548 F.2d 88 (3d Cir.1977).

The court is persuaded that at the time of the *Holtz* invention and indeed, today, it is recognized that in order for high speed tool steels to have the optimum measure of toughness, grindability, heat resistance, hardness, dimensional stability, and wear resistance, they must possess characteristics which too often are mutually exclusive. These include full, or, substantially full, density with a resultant lack of porosity, and a uniformly dispersed hard phase of fine carbides.[29] It is also generally conceded that the attainment of these qualities is very difficult because they are produced by opposite effects.[30]

We have considered all of the prior art references cited by the defendants with special attention to those primary sources; i.e., Mott, *Comstock* and *Reen I*, and have concluded that no prior inventor was able to achieve the requisite combination of high density and finely dispersed carbides necessary to the production of top quality high speed tool steel. Indeed, no prior inventor even regarded such a combination as theoretically possible.[31]

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29. Agreed Finding 20.

30. Tr. at 142-3.

31. Plaintiff's Exhibit 9 at p. 22 ("neither *Reen* nor *Comstock* even cautions against carbide growth at elevated temperatures").

Mr. Neumeyer stated that the *Comstock* process was insufficient to achieve full density.[32] In addition, Neumeyer opined that *Comstock* could not achieve fine carbides due to the use of "as high a temperature as possible" during the compaction process.[33]

Similarly, with respect to *Reen*, Neumeyer stated that *Reen* was unable to achieve full density without sacrificing fine carbide size.[34] As previously noted, Neumeyer suggested that *Reen* could produce cutting tools, but of inferior quality due to the chemical inhomogeneity of the *Reen* product.[35]

With respect to Mott, Dr. Tien noted that Mott dealt with high temperature structural alloys.[36] In addition, Tien concluded that the Mott teaching clearly produced insufficient density for cutting tools and indeed, a density which was below even that recommended for the less demanding high temperature structural alloys.[37]

From our review of these references,[38] we conclude that until the *Holtz* invention, those in the art were left with a choice between the full density achieved through a high temperature process which inevitably yielded undesirable

32. Tr. at 226-7.

33. Tr. at 228.

34. Tr. at 280.

35. Tr. at 261.

36. Tr. at 1585.

37. Tr. at 1591-2.

38. Defendants also cite the *Williams, Hirsch, Federal Mogul* and *Holtz I* references to establish obviousness. See defendants' post-trial brief at 22. However, defendants have not pressed their contention with respect to these references but merely state in conclusory fashion that they also establish that *Holtz* claim 30 is obvious. Nonetheless, the court has reviewed all prior art cited by defendants in reaching the conclusion that the *Holtz* patent in suit is not obvious.

coarse carbides, or a process which controlled carbide growth but which resulted in insufficient density. The *Holtz* process produced the desired combination of full density and fine carbide size necessary to the production of superior cutting tool steel.

In reaching this conclusion, we necessarily reject defendants' contention that the 3 micron carbide size is not critical and thus not of "patentable significance." Defendants' Brief After Trial p. 15). The PTO Board of Appeals stated that "the claimed limitation of three microns as the size of the carbides is significant in terms of the utility of high speed tool steels and is not merely an arbitrary quantification."[39] This conclusion, with which we agree, finds support in the testimony of Mr. Neumeyer[40] and Dr. Hellman.[41] In any event, the criticality of particular range selection by an inventor is only controlling if criticality is essential to nonobviousness. *See Application of Kroekel,* 504 F.2d 1143 (CCPA 1974). And since we have found that those in the art were unable to achieve the *combination* of fine carbides and full density, the criticality of 3 micron carbides is not essential with respect to obviousness.

We also summarily reject as unsupported by the weight of the evidence, Dr. Lawley's conclusion that *Holtz* claim 30 is obvious.[42]

Other Considerations

We proceed next to the "other considerations" outlined by the court in *Graham, supra,* because our consideration

39. Plaintiff's Exhibit 9 at 10.

40. Tr. at 478.

41. Tr. at 1010, see also Plaintiff's Exhibit 120.

42. Tr. at 2586.

of the prior art encompassed an examination of the differences between the *Holtz* patent, the prior art in suit and the level of skill in the art.

Commercial Success

With respect to the commercial success of the *Holtz* invention, the parties have stipulated to the fact that the substantially improved properties of the Holtz products have led to substantial commercial success of the products of both plaintiff and defendants.[43]

Long-Felt Unsolved Needs/Failure of Others

As evident from the foregoing discussion, we have concluded that those in the art of producing cutting tool steel had long desired to improve their products but were unable to achieve the desired combination of necessary qualities. It was precisely for this reason that the U.S. Air Force commissioned the *Holtz* research effort.[44]

It also is clear to the court from the testimony of Dr. Hellman that, at the very least, when defendants became aware of Mr. Holtz' success through his work on the so-called "IITRI" Research Project, defendants commenced work to attempt to achieve the combination of finely dispersed carbides and theoretical full density, and, moreover, recognized that they were substantially behind their American competitor.[45] Additionally, a factor which bears on both commercial success, and long-felt unsolved needs and the failure of others, is the fact that in 1970 Mr. Holtz won

43. Agreed Finding 25; Tr. at 1520-21.

44. Tr. at 1308.

45. Tr. at 1114.

an award from *Industrial Research Magazine* for inventing one of the one hundred most significant scientific developments of the year.[46]

In conclusion with respect to obviousness, the court finds that the *Holtz* invention was exactly what it purported to be; viz, the development of a new and previously thought unachievable, yet very desirable, method and process for obtaining the necessary and theretofore mutually exclusive properties of theoretical full density and finely dispersed carbides for use in high speed tool steels.

Double Patenting

On the eve of trial, defendants for the first time raised the issue that the *Holtz* patent was invalid for double patenting. Counsel for defendants argued that no prejudice would result from this timing because the issue could be resolved as a matter of law by a comparison of the claims of two previously issued *Holtz* patents with the wording of claim 30.[47]

As the court noted during trial, there are two types of double patenting. The first is the same-invention double patenting and the test for this is whether the claim of the subsequent patent literally "infringes" the prior patent. *See* 3 D. Chisum, *supra*, at § 9.03[1][3]. The second type of double patenting is the so-called "obviousness" double patenting, the test for which is very similar to the one employed to determine the nonobviousness requirement for patent validity. *Id.* Obviousness double patenting can be cured by the issuance of a terminal disclaimer under 35 U.S.C. § 253 (1982) which permits a patentee or applicant

46. Agreed Finding 39.

47. Tr. at 8-10.

to disclaim the entire or any part of the term of the patent granted. *See generally Application of Vogel*, 422 F.2d 438, 57 CCPA 920 (1970).

In light of the representations of counsel for defendants, the only issue before the court is the issue of whether or not there is same-invention double patenting. Since that determination does not involve a factual inquiry into the prior art, we look simply to the claims of the prior *Holtz* patents and the claim 30 in suit to determine whether or not they are identical and thus, whether double patenting exists. In *Application of Vogel*, the court stated:

> By "same invention" we mean identical subject matter. Thus, the invention defined by a claim reciting "halogen" is not the *same* as that defined by a claim reciting "chlorine," because the former is broader than the latter. On the other hand, claims may be differently worded and still define the same invention. Thus a claim reciting a length of "thirty-six inches" defines the same invention as a claim reciting a length of "three feet," if all other limitations are identical . . . A good test, and probably the only objective test, for "same invention," is whether one of the claims could be literally infringed without literally infringing the other. If it could be, the claims do not define identically the same invention.

422 F.2d at 441 (emphasis in original).

As plaintiff correctly points out, in *Application of Vogel*, the issued patent claims were limited to pork while the claims on application pertained to meat, on which basis the court found no double patenting. In this case, the claims of the prior *Holtz* patents are limited to nickel based alloys, while claim 30 in suit pertains to iron and cobalt

alloys in addition to nickel base alloys. On this basis upon the authority of *Application of Vogel*, the court concludes that there is no double patenting.

B.

Infringement

In *Graver Tank & Manufacturing Company v. Linde Air Products Company*, 339 U.S. 605, 607, 70 S.Ct. 854, 855, 94 L.Ed. 1097 (1950), the Court stated:

> In determining whether an accused device or composition infringes a valid patent, resort must be had in the first instance to the words of the claim. If accused matter falls clearly within the claim, infringement is made out and that is the end of it.

In the instant action, defendants have admitted the literal infringement of claim 30 with respect to all of its elements except with respect to "hot working" and "supersaturated solid solution".

Supersaturated Solid Solution

Defendants contend that "[t]he hallmark of a 'solid solution' is the absence of a discernible sound phase." And, further, that since "[t]he ASP powder particles used to form defendants' accused products do not consist of a single metallurgical phase; they consist of at least two intimately comingled metallurgical phases; viz., austenite and carbide. . . . Defendants' accused products are not, therefore, 'formed of a hot worked supersaturated solid solution,' and for that reason do not infringe."[48]

48. Defendants' post-trial brief at 34-35.

Plaintiff's response is that it is indisputable that the *Holtz* patent, which has power particles having discernible carbides, is equivalent to defendants' ASP product, which has its austenite phase in the powder—the defendants' so-called second phase.

The court finds that the defendants' contention that a supersaturated solid solution is limited to a single phase to be a semantic distinction without a difference. To postulate that the creation of austenite particles creates a multiple phase powder reads a limitation into *Holtz* claim 30 with regard to defendants' possible infringement, but ignores the fact that within the *Holtz* powder the dispersed phase of carbides is also theoretically unsaturated and thus, at the very least, the two products are equivalent under the standards set forth in *Graver Tank*.

Re: HIPing

The defendants' contend that HIPing, otherwise known as "hot isostatic pressing," is not "hot working" under the reverse doctrine of equivalents. Under this doctrine, patent law equivalency does not exist if the alleged infringing device produces a different result or the same result in a different way. *Westinghouse v. Boyden Power Brake Co.*, 170 U.S. 537, 568-69, 18 S.Ct. 707, 722-23, 42 L.Ed. 1136 (1898).

Defendants cite a list of differences between HIPing and hot working.[49] However, this argument strains credibility in light of the overwhelming evidence that hot working and HIPing both involve the application of comprehensive forces to the powder metallurgy at elevated temperatures,

49. Defendants' post-trial brief at 40.

thus, forging the product into a fully dense material. Plaintiff cites *International Nickel Co. v. United States*, 175 U.S.P.Q. 209 (CCPA 1972) which held at p. 215:

> However, the heat treatment regime used is embraced by the patent claims; and the fact that it may vary somewhat from the regime taught in Bieber's specification does not avoid infringement.

Because we find that through hot isostatic pressing, HIPing, the defendants achieve the same result as *Holtz* in "substantially the same way," *Sanitary Refrigerator Co. v. Winters*, 280 U.S. 30, 42, 50 S.Ct. 9, 13, 74 L.Ed. 147 (1929), we conclude that defendants have infringed under the doctrine of equivalents. *See also Graver Tank*, 339 U.S. at 608, 70 S.Ct. at 856.

In conclusion with respect to infringement, the court finds that defendants' ASP 23, 30 and 60 powder metallurgical products are formed of a hot worked supersaturated solid solution and, thus, infringement of *Holtz* claim 30 is complete.

II.

Steven Patent

A.

Validity

Claim 4 of the *Steven* patent, the claim at issue here, provides:

> 4. An article of manufacture as defined in claim 2, in the form of a hob for use in milling applications.
>
> [2. An article as defined in claim 1 wherein the com-

position of said metal body consists of, in percent, 0.80 to 3.00 carbon, up to 2 manganese, up to 1 silicon, up to 0.5 sulfur, up to 18.0 tungsten, up to 10.0 chromium, up to 12 molybdenum, up to 5 vanadium, up to 12 cobalt and balance iron, with tungsten + molybdenum + chromium + vanadium being equal to at least 10 percent.]

[1. As an article of manufacture, a metal body constructed of compacted particles of a high speed tool or die steel composition containing a metal component capable of reacting with carbon to form carbides, said reactive metal component being at least one metal selected from the group consisting of titanium, vanadium, molybdenum, zirconium, columbium, tungsten and tantalum each of said particles having carbides of said reactive metal substantially evenly dispersed throughout, said body having a hardness of at least about 58 R_c and being characterized by size change uniformity upon austenitizing, quenching and tempering.]

The defendants challenge *Steven* on the grounds that it was anticipated and that it is obvious. All other issues of validity and infringement are admitted.[50] In addition, defendants contend that the statutory presumption of validity which normally would attach to the *Steven* patent is nullified by plaintiff's failure to cite relevant prior art[51] to the patent examiner.[52]

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50. Agreed Finding 52; Agreed Conclusion 13; Agreed Finding 109; see generally plaintiff's post-trial brief at 23.

51. *Comstock*.

52. *Steven* file history, Plaintiff's Exhibit 7.

B.

Anticipation

As noted *supra*, the test of anticipation is one of strict identity. For a reference to be anticipatory, it must contain all of the elements of the claimed invention. 1 D. Chisum, *supra*, at § 3.02; *Skelly Oil Co. v. Universal Oil Products Co.*, 31 F.2d 427, 431 (3d Cir.1929). Anticipation cannot be shown by combining more than one reference to show the elements of the claimed invention. 1 D. Chisum, *supra*, at § 3.02; *Application of Saunders*, 444 F.2d 599, 602, 58 CCPA 1316 (1971). As was noted in *Cold Metal Process Co. v. Carnegie-Illinois Steel Corporation*, 108 F.2d 322, 333 (3d Cir.1939), *cert. denied* 309 U.S. 665, 60 S.Ct. 590, 84 L.Ed. 1012 (1940), quoting from an earlier opinion of the Third Circuit in *Skelly Oil Co. v. Universal Oil Products Co.*, 31 F.2d 427, 431 (3d Cir.1929):

> A patent relied upon as an anticipation must itself speak. Its specification must give substance the same knowledge and the same directions as the specification of the patent in suit. *Otto v. Linford*, 46 L.T. (N.S.) 35, 44. It is not enough to prove that a method or apparatus described in an earlier specification can be made to produce this or that result. *Flour Oxidizing Co. v. Carr & Co.*, 35 R.P.C. 457. A singularly sensible test of the rule of anticipation is given in *British Thomson-Houston Co. v. Metropolitan Vickers Electrical Co.*, 45 R.P.C. 22, by asking the question—"Would a man who was grappling with the problem solved by the patent attacked, and having no knowledge of that patent, if he had had the alleged anticipation in his hand, have said: 'That gives me what I wish?' "....

In this context, defendants allege that *Steven* is anticipated by *Comstock* and *Holtz*.

Steven v. Comstock

The *Steven* patent provides a process for making hobs, a type of high speed tool, through a powder metallurgical process. The *Steven* process provides for a hardening treatment stage involving metallurgical phase changes, including austenitizing, quenching, and then, tempering, all designed to achieve size change uniformity and a resultant elimination of out-of-roundness and dimensional instability.[53]

Defendants contend that *Comstock's* uniform carbide distribution and substanstial non-porosity make it anticipatory of *Steven*. In support of this position, the testimony of Dr. Lawley was offered. Dr. Lawley testified that the problem recognized by *Steven;* viz., that out-of-roundness after hardening treatment is a function of carbide alignment, previously was answered by *Comstock*.[54]

Plaintiff contends that while *Comstock* mentions tool use in milling cutter applications, it failed to achieve full density or size change uniformity. Plaintiff offered Mr. Neumeyer who testified that Comstock's use of a hot coining process in a fixed wall die produced density gradients and surface friction causing uneven densification.[55] Neumeyer contended that full density was necessary for hobs,[56] and it is plaintiff's position that this was achieved by *Steven* and by no other.

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53. See generally Plaintiff's Exhibit 5; plaintiff's post-trial brief at 15; defendants' post-trial brief at 40.

54. Tr. at 2575.

55. Tr. at 227.

56. Tr. at 166.

In addition, plaintiff contends that *Comstock* is inhomogenous. Neumeyer stated that because of the reliance by *Comstock* on high temperatures, the existence of coarse carbides was inevitable.[57] This, plaintiff contends, leads to an inability by *Comstock* to achieve size change uniformity, the necessary predicate to avoiding out-of-roundness.

The plaintiff's position is supported by the decision of the PTO Board of Appeals[58] wherein the Board in passing on the *Holtz* grandchild application, assessed the *Comstock* reference to be devoid of any caution or concern with regard to the growth of coarse carbides at high temperatures. Given this evaluation with which the court agrees, and the standard for anticipation under 35 U.S.C. § 102, the court finds that the *Steven* patent is not anticipated by *Comstock*.

Steven v. Holtz

The court also finds that the defendants' argument that *Holtz* anticipated *Steven* is untenable. The parties agree that the PTO refused to conduct an interference proceeding between the *Holtz* and *Steven* patents,[59] however, each side attributes different significance to that fact. Plaintiff contends that although Mr. Holtz achieved size change uniformity, his patent did not disclose that property,[60] and since the PTO refused to declare an interference,[61] this is grounds for finding no anticipation.

57. Tr. at 229.

58. Plaintiff's Exhibit 9.

59. Plaintiff's post-trial brief at 16; defendants' reply brief at 43 n. 12.

60. Defendants' post-trial brief at 16.

61. Plaintiff's Exhibit 4.

Defendants contend that the failure of plaintiff to convince the PTO to declare an interference constitutes a finding by the PTO of a lack of the inherency required to justify interference. *See Gubelmann v. Gang*, 408 F.2d 758, 766, 56 CCPA 1013 (1969). Thus, defendants contend that the failure of the plaintiff to gain an interference does not control, since "[t]he important thing is that . . . plaintiff admits inherency in this case."[62]

Defendants are correct in that regard. However, we find that while size change uniformity was inherent in *Holtz*, it nevertheless cannot be said that *Holtz* anticipated *Steven*, since the existence of this inherency alone of merely one element of the claimed invention, does not fulfill the strict requirements of anticipation. *See Cold Metal Process Co. v. Carnegie-Illinois Steel Corporation*, 108 F.2d at 333.

C.

Obviousness

With respect to the *Steven* patent, defendants contend the claim invention is obvious in light of *Holtz, Comstock, Frehser*[63] and *Lament*.[64] We consider this contention in light of the statutory presumption of validity and the *Graham* criteria.

Steven v. Holtz re: obviousness

In considering this issue the court notes the irony of the parties' positions. Plaintiff contends that *Holtz* is

62. Defendants' post-trial reply brief at 43, n. 12.

63. "Anisotropic Dimensional Changes due to Heat Treatment of Ledeburitic Chrome Tool Steels" (1953); Defendants' Exhibit BB.

64. "Distortion in Tool Steels" (1959); Defendants' Exhibit CC.

limited to cutting tools, but maintains that *Steven*, a concededly similar powder metallurgy hob, a cutting tool, is not obvious. Defendants, on the other hand, contend vigorously that *Holtz* is *not* limited to cutting tools, but would have us find that *Steven* is obvious in light of *Holtz* because *Steven's* hob-producing (cutting tool producing) process is a specific example of the *Holtz* teachings.

Nonetheless, the court finds that *Steven* is not obvious. The principal benefit of the *Steven* process is in its elimination of the out-of-roundness traditionally characteristic in past methods of producing hobs. This, as we previously noted, is achieved through a hardening treatment phase which maximizes size change uniformity, a property particularly essential for hobs because of the reduction of out-of-roundness and resultant increased dimensional stability. While we find that *Holtz* is limited to cutting tools, the *Steven* process is not obvious.

Steven v. Comstock re: obviousness

As noted, *supra*, the *Comstock* reference pertained to milling cutters of which a hob is a specific example. However, we have also noted that *Comstock's* hot-coining process utilized high temperatures and resulted in coarse carbides. As the PTO Board of Appeals found, we also find that this reflects *Comstock's* lack of ability to attain full, or substantially full, density *and* uniformly distributed fine carbide particles. *Steven* was able to achieve this, and for this reason we believe that *Steven* is not obvious in light of *Comstock*.

Steven re: other prior art

Defendants cite the *Lement* and *Frehser* references as establishing the obviousness of *Steven's* claimed achievement of improved dimensional stability through elimination of inhomogeneous carbide segregation.[65] However, as plaintiff correctly points out, the principal thrust of the teachings of both *Lement* and *Frehser* was that distortion was problematic in tool steels, suggesting that "heat treatment without dimensional changes can be achieved only in exceptional cases,"[66] and "dimensional changes that occur in tool steels are due to phase transformations, plasticity, elasticity and thermal expansion."[67] While both *Lement* and *Frehser* recognized the importance of chemical composition and finishing processes as controls on distortion,[68] neither reference even considers the production of tool steel through a powder metallurgy process. While the *Lement* reference notes the problems of out-of-roundness,[69] no solution is offered, but instead suggestion is made as to what tempering processes may be used to limit this problem.[70] It is evident to the court from these facts, that *Steven* is not obvious in light of *Lement* and *Frehser*.

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65. Defendants' post-trial brief at 43; defendants' reply brief at 44.

66. Defendants' Exhibit BB at 2 (of translation); see also plaintiff's post-trial brief at 15, 102.

67. Defendants' Exhibit CC at 1.

68. Defendants' Exhibit CC at 53-88.

69. Defendants' Exhibit CC at 6, 75-76.

70. *Id.* at 76.

Steven re: other considerations[71]

The court finds that the long-felt need for the *Steven* invention is established by the previous consideration of the prior art. It is established that those in the art were unable to achieve a sufficient degree of dimensional stability to cope with the out-of-roundness problem inherent in hobs. Moreover, it appears that those who addressed the problem were in disagreement as to the cause. The *Steven* process is not only nonobvious, but appears to be revolutionary in its elimination of dimensional instability in hobs.

For the foregoing reasons, the court concludes that the *Steven* patent is valid.

III.

Willful Infringement

Under 35 U.S.C. § 284, the court has discretion to award treble damages for willful infringement of plaintiff's patent rights. *Trio Process Corp. v. L. Goldstein's Sons, Inc.*, 612 F.2d 1353, 1361 (3d Cir.), *cert. denied* 449 U.S. 827, 101 S.Ct. 91, 66 L.Ed.2d 30 (1980), *opinion clarified* 638 F.2d 661 (3d Cir.1981). A patent owner is entitled to treble damages where another has knowingly, deliberately, intentionally, willfully or wantonly infringed the patent. *Smith v. Alyeska Pipeline Service Co.*, 538 F.Supp. 977, 986 (D. Del.1982); *Jenn-Air Corp. v. Penn Ventilation Co.*, 394 F.Supp. 665, 676 (E.D.Pa.1975). However, where the issue of patentability is close and litigated in good faith, the court should be reluctant to impose punitive damages. *Yoder*

71. The only other prior art reference cited is the *Fletcher* reference cited by plaintiff. As plaintiff's note, *Fletcher* specifically disavowed the relationship between inhomogeneous carbide distribution and dimensional changes. See Plaintiff's Exhibit 255.

Bros., Inc. v. California-Florida Plant Corp., 537 F.2d 1347, 1383 (5th Cir. 1976); *Upjohn Co. v. Italian Drugs Importing Co.*, 190 F.Supp. 361, 367 (S.D.N.Y. 1961).

In this action, while plaintiff cites multiple bases for a finding of willfulness, the essence of plaintiff's case on this issue is Dr. Hellman's memorandum dated February 5, 1973.[72] The Hellman memo followed a meeting between officials of plaintiff and defendants during which plaintiff alerted dfendants to the existence of patent claims which allegedly were being infringed by sales of defendants' ASP steel in the United States.

Upon review of the Hellman memorandum[73] and consideration of Dr. Hellman's explanation of the memorandum at trial,[74] several facts are apparent to the court.

First, Dr. Hellman's memorandum was based upon the *assumption* that defendants were infringing plaintiff's patent claims, as to which assumption he stated "we have no possibilities for checking on this. . . ." Second, based upon the *assumed* premise that plaintiff's patents were valid and being infringed by defendants, Dr. Hellman charted a strategy to check patent validity; contest patent validity; and, in the process, to get defendants' products into the United States market. Finally, Hellman assessed the costs and prospects of litigation upon the further assumption that "the evaluation give the right result."[75]

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72. Plaintiff's Exhibit 159.

73. The Hellman memorandum was admitted over privilege objections at trial; transcript at 1234 with the question of its admissibility in light of Fed.R.Evid. 408 reserved. Transcript at 1227-8. Upon review of this issue post-trial, the court concludes that Rule 408 is not applicable and the document is admissible. See generally 2 J. Weinstein, *Evidence*, ¶ 408.01 (1982).

74. See generally, Tr. at 1194-1265; 1857-2050.

75. Plaintiff's Exhibit 159 at line 127.

On balance, the court is unpersuaded that the evidence including Dr. Hellman's memorandum is sufficient to constitute a basis for treble damages. While the patent laws are designed to protect invention, 4 D. Chisum, *supra*, at § 16.02[1], the availability of damage awards serves that purpose, the treble damage awards should not be used to thwart good faith efforts to contest patent validity. *Yoder, supra.* Here, when defendants first were made aware of plaintiff's patent rights by letter from counsel in 1972, they replied that the patents in question were invalid because of *Comstock* and the 1964 *Holtz* article in *Metalworking Magazine.* After the meeting in 1973, the Hellman memerandum merely evidences an aggressive strategy of contesting the patents. The defendants' claims of good faith have not been overcome by the evidence, and we decline to find this to be such an "exceptional case" under 35 U.S.C. § 284 (1982), to justify the award of treble damages. The issues of patent validity, especially, presented substantial questions upon which there has been genuine debate and honest disagreement as evidenced throughout this litigation and by the protracted and checkered history of this matter in the PTO.

IV.

Fraud/Unclean Hands

At trial, counsel for defendants stated that defendants were not alleging fraud to invalidate the *Holtz* and/or *Steven* patents, but merely were attempting to show unclean hands to establish a basis for attorneys' fees in the event defendants prevailed.[76] Since defendants have not prevailed, there is no basis for an award of attorneys' fees to defendants. 35 U.S.C. § 285 (1982).

An appropriate order will follow.

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76. Tr. at 2689-90.

IN THE

DISTRICT COURT OF THE UNITED STATES

FOR THE WESTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 74-917

CRUCIBLE, INC., a Delaware corporation,
Plaintiff,

v.

STORA KOPPARBERGS BERGSLAGS AB, a Swedish corporation, and UDDEHOLMS AB, a Swedish corporation,
Defendants.

Civil Action No. 74-1062

STORA KOPPARBERG CORPORATION, a New York corporation, and UDDEHOLM STEEL CORPORATION, a New York corporation,
Plaintiffs,

v.

CRUCIBLE, INC., a Delaware corporation,
Defendant.

ORDER OF COURT

AND Now, this 11th day of October, 1984, in accordance with this court's opinion dated September 19, 1984, and a status conference held on October 5, 1984, IT IS ORDERED that:

1) Crucible Materials Corporation is added as a plaintiff in the above-captioned matters;

2) Claim 30 of U.S. Patent No. 3,746,518 to *Holtz* is valid and infringed by defendants' ASP 23, ASP 30, and ASP 60 products;

3) Claim 4 of U.S. Patent No. 3,561,934 to *Steven* is valid and infringed by defendants' ASP 23, ASP 30, and ASP 60 products used in the making of hobs;

4) Each of the defendants, their officers, agents, servants, employees, successors in interest and assigns, and any other person, corporation, or organization acting in concert with them is hereby permanently enjoined and restrained during the life of the respective U.S. patents identified above from the making, using or selling of ASP 23, ASP 30, and ASP 60 products, and from inducing or contributing to the making, using, or selling of these products by others;

5) Plaintiffs shall have an accounting for damages resulting from defendants' infringement;

6) The related antitrust and damage issues having been severed for later trial, it is expressly determined by this court, under Rule 54(b), Fed.R.Civ. P., that there is no just reason for delay in the entry of this judgment on the issues of patent validity and infringement;

7) Notice of this order shall be given by the plaintiffs to the defendants in Civil Action No. 84-2106;

8) The defendants in the present action as well as those in Civil Action No. 84-2106 shall have until Monday, October 15, 1984, to submit a brief in opposition to the original plaintiff's motion to join pursuant to Fed.R.Civ.P. 19 and 25, and to file a motion to stay injunction pending appeal;

9) The plaintiffs shall have until Monday, October 15, 1984, to submit a brief in support of its motion to

join pursuant to Fed.R.Civ.P. 19 and 25, and until October 22, 1984, to file a response and brief to the motion to stay injunction pending appeal;

10) The present injunction is stayed pending a final ruling by the court on defendants' motion to stay injunction pending appeal;

11) Discovery on the remaining damage and antitrust issues will be opened for six (6) months from the date of this order; and,

12) The Clerk shall enter a final judgment on the order herein.

/s/ GUSTAV DIAMOND

United States District Judge

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IN THE

DISTRICT COURT OF THE UNITED STATES

FOR THE WESTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 74-917

CRUCIBLE, INC., a Delaware corporation, and CRUCIBLE MATERIALS CORPORATION, a Delaware corporation,
Plaintiffs,

v.

STORA KOPPARBERGS BERGSLAGS AB and UDDEHOLMS AB, both Swedish corporations,
Defendants.

Civil Action No. 74-1062

STORA KOPPARBERG CORPORATION, a New York corporation, and UDDEHOLM STEEL CORPORATION, a New York corporation,
Plaintiffs,

v.

CRUCIBLE, INC.,
Defendant.

MEMORANDUM OPINION

DIAMOND, J.

Presently before the court are a number of motions by the plaintiffs, defendants, and other interested parties.

I.

MOTIONS TO STAY INJUNCTION PENDING APPEAL

The defendants in Civil Action No. 74-817, Stora Kopparbergs Bergslags AB and Uddeholms AB ("Uddeholms-Sweden") (collectively "Stora"), have filed a motion to stay pending appeal the injunction entered by this court in its order dated October 11, 1984. Kloster Speedsteel AB ("Kloster-Sweden"), Speedsteel of New Jersey, Inc. ("Kloster-U.S."), Fagersta AB ("Fagersta-Sweden") and Fagersta, Inc. ("Fagersta-U.S.") (collectively "Kloster"), whose identities will be set forth more fully below, have filed a motion to vacate, to modify or, in the alternative, to stay the October 11, 1984, order of this court. We first address the motions for a stay.

In order to obtain a stay of an injunction pending appeal, the party seeking the stay must make:

1) A strong showing that he is likely to succeed on the merits of the appeal;

2) A showing that, unless a stay is granted, he will suffer irreparable injuries;

3) A showing that no substantial harm will come to other interested parties by the stay; and

4) A showing that a stay will do no harm to the public interest.

Reserve Mining Co. v. *United States,* 498 F.2d 1073, 1076-1077 (8th Cir. 1974), *motion denied,* 95 S.Ct. 287, 419 U.S. 802, 42 L.Ed.2d 33, *motion denied,* 95 S.Ct. 1441, 420 U.S. 1000, 43 L.Ed.2d 758, *remanded on other grounds,* 514 F.2d 492. *See also, Kawecki Berylco Industries* v. *Fansteel,* 517

F.Supp. 539 (E.D.Pa. 1981); *Walker* v. *O'Bannon*, 487 F. Supp. 1151 (W.D.Pa.), *aff'd* 624 F.2d 1092 (3d Cir. 1980).

No one factor determines the outcome, and it is not necessary that the court have serious doubts concerning the correctness of its decision from which the appeal is taken in order to grant a stay. Thus, if the other three factors strongly favor a stay, the movants need only demonstrate that they have made out a substantive case on the merits in order to establish a likelihood of success. *Walker*, 487 F.Supp. at 1161; *Washington Metropolitan Area Transit Commission* v. *Holiday Tours*, 559 F.2d 841 (D.C.Cir. 1977). In any event, the burden is a heavy one, and they must show more than the nonfrivolity of the appeal. *Kawecki*, 517 F.Supp. at 541.

A. *Likelihood of Success*

The *Reserve Mining Co.* court, referring to the likelihood-of-success factor put it this way: "[This] element goes to the sensible administration of justice: a stay should not ordinarily be granted if the court determines that the injunction will ultimately take effect in any event." *Reserve Mining Co.* v. *United States, supra* at 1077.

The movants contend that they are likely to be successful on appeal because there exists a serious question whether this court's September 19, 1984, ruling, upon which the October 11, injunction was based, was itself based upon adequate findings and a proper application of the law. They argue first that the court failed to define the level of ordinary skill in the art, and further, in determining what the prior art references reasonably would suggest to one skilled in the art, treated each reference separately rather than collectively. Next, they argue that the court

did not recognize the difference between patent claims which covered *products* and patent claims which covered *processes,* because, although the *Steven* patent is for a product, the court in its ruling made references to "the *Steven* process." Third, they contend that the court treated prior art references as if, in order to anticipate, those references actually had to disclose inventions just as commercially effective as the invention claimed in the patent suit. Fourth, they assert that the court did not fulfill its obligation to be an independent trier of fact because it placed undue reliance on the decision of the Patent Office Board of Appeals. Fifth, they argue that the court did not consider fully the serious question of whether Crucible was guilty of fraud in prosecuting the patent in suit since the court considered the fraud issue only as to its effect on the presumption of validity of the patent. And finally, they suggest that the court misapplied the statutory presumption of patent validty when it "strengthened" the presumption because Stora participated in *inter partes* proceedings before the Patent and Trademark Office ("PTO") and because of PTO Board of Appeals ruled in favor of Crucible.

Plaintiffs Crucible, Inc. and Crucible Materials Corp. (collectively "Crucible"), not surprisingly, respond that the attacks on the court's rulings are not well taken. Crucible argues that the court properly applied the statutory standards for patentability, and, more significantly, the standard to be used in determining obviousness, properly considered what the prior art references collectively would suggest to one of ordinary skill in the art, understood the difference between patent claims covering *products* and patent claims covering *processes,* made its own findings

and analysis independent of those of the PTO's, gave Stora's fraud defense the effect to which it properly was entitled, because Stora waived that defense except for purposes of attorney's fees, and, finally, properly applied the statutory presumption of validity.

Under 35 U.S.C. §103, the obviousness of the subject matter of a patent is to be determined against the background of, *inter alia,* the level of ordinary skill in the pertinent art. *Graham* v. *John Deere Company of Kansas City,* 383 U.S. 1, 17, 15 L.Ed.2d 545, 556, 86 S.Ct. 684 (1966). In *Leinoff* v. *Louis Milona & Sons,* 726 F.2d 734, 739 (Fed. Cir. 1984), the court stated that "the question of obviousness depends, furthermore, on not only what the references expressly teach, but what they would collectively suggest to one of ordinary skill in the art."

In the case at bar, the court specifically noted that, it had "considered *all* of the prior art references cited by the defendants." (emphasis added). *Crucible* v. *Stora Kopparsberg Bergslags,* 594 F.Supp. 1249, 1257 (W.D.Pa. 1984). And it is clear, we think, that we did so separately and collectively. For we concluded that until the *Holtz* invention, *those in the art* were left with the choice between "the full density achieved through a high temperature process which inevitably yielded undesirable coarse carbides, or a process which controlled the carbide growth but which resulted in insufficient density." *Id.* Moreover, we expressed our belief that the *Holtz* invention was so nonobvious that prior to *Holtz* "no prior inventor even regarded such a combination as theoretically possible." *Id.* In other words, it was not obvious to *anyone* at *any* level of skill in the art prior to *Holtz.* Any further reference, finding, or definitions of level of skill in the art, in view of

that finding would have been superfluous. Thus, the court found that the prior art references collectively suggested that the achievement of full density and fine carbide size was neither theoretically nor practically possible.

Secondly, the court described *Steven* as a "powder metallurgy hob, a *cutting tool.*" (emphasis added). *Id.* at 1262. That is a reference to a product, not a process. The court also stated "that those in the art were unable to achieve a sufficient degree of dimensional stability to cope with the out-of-roundness problem inherent in hobs," and found that there was a long-felt need for the *Steven invention.*" (emphasis added). *Id.* at 1263. Stora challenged the validity of the *Steven* patent by arguing:

> The process taught by Steven for making his claimed hob consists of (1) producing prealloyed tool or die steel powders, (2) heating the powders to elevated temperatures, and (3) compacting the powders "in accordance with a suitable powder metallurgy technique to a final density of at least about ninety-nine percent." . . . That, of course, is precisely the process previously described by *Comstock,* by *Reen* and by *Holtz,* each of whom stressed uniformity of his resulting carbide microstructure.

Stora's Brief After Trial, p. 42. The court referred to *Steven* as a process only in addressing Stora's contention that, because the process taught, by *Steven* was either obvious or anticipated, the *Steven* hob patent was not valid. To the extent that the court determined that the *Steven* invention was made possible by virtue of a process that was "not only nonobvious, but appears to be revolutionary" the court merely was being precise in its terminology and was well within the bounds of propriety. *See, In re*

Grose, 592 F.2d 1161, 1168 (C.C.Pa. 1979); *In re Hoeksema*, 399 F.2d 269 (C.C.Pa. 1968).

Third, there is no merit to the movants' suggestion that the court improperly applied prior art references to the issue of patent validity by requiring that in order to adversely affect the validity of the patent those references had to disclose inventions which were as commercially viable as the invention claimed in the patent. As stated above, the court found *Holtz* nonobvious and the prior art insufficient to invalidate the patent because, *inter alia*, the prior art failed to suggest the requisite combination of high-density and finely disbursed carbides and because *Holtz* achieved that which no prior inventor had regarded as even theoretically possible. We also note that contrary to the movants' contention, the court did not find *Holtz* valid simply because *Reen* covered *non-cutting tool* steels. Rather, the court accepted the testimony of Thomas Neumeyer that *Reen* was unable to achieve full density without sacrificing fine carbide size, and that it "would produce an inferior cutting tool due to the chemical inhomogeneity inherent in the *Reen* process resutling in a lack of full density." *Crucible*, 594 F.Supp. at 1255.

As to defendants' fourth point, it should be clear from the court's lengthy opinion that it did make its own independent findings and analysis. In any event "counsel for both parties acknowledged in advance that the Patent Office decision on patentability should be given great weight by the court." (Agreed finding of fact 9). Thus, we find unpersuasive Stora's broad assertion that the court placed undue reliance on the decision of the Patent Office Board of Appeals.

Fifth, the movants contend that the court failed fully to consider whether Crucible was guilty of fraud in pro-

curing the patent in suit. They suggest that we reviewed the fraud issue only as to its effect on the presumption of validity of the patent. However, at trial, counsel for Stora waived the fraud defense except for purposes of attorney's fees in the event Stora prevailed. (Trial Transcript at 26, 87-90). In addition, we direct the parties' attention to our consideration of Crucible's motion to amend the findings, *infra.* Section IV.

Finally, the movants argue that the court misapplied the statutory presumption of patent validity by strengthening the presumption on the basis of Stora's participation in *inter partes* proceedings before the Patent and Trademark Office and on the basis of the PTO Board of Appeals ruling in favor of Crucible. The court did not find that the statutory presumption of validity was strengthened. Rather, we found that "the failure to cite the *Comstock* reference does not materially weaken the statutory presumption of validity attaching to the *Holtz* patent." *Crucible,* 594 F.Supp. at 1253. In any event, the court's ultimate holding that the patents were valid was not based upon a statutory *presumption* of validity, but rather on the court's own findings and analysis.

Accordingly, we find that the movants have not demonstrated any probability of success on the merits on appeal.

B. *Other Factors*

The movants contend that the remaining three factors that the court must consider also weigh in favor of a stay pending appeal. They state, first, that they would suffer irreparable harm because an injunction would destroy their businesses and markets. Second, they contend that no irreparable harm will be suffered by Crucible because

money damages adequately will compensate them for any loss they may suffer pending appeal and any harm resulting from third parties entering the market with infringing products can be cured by the assertion of claims by Crucible against any such infringing competitors. Finally, movants contend that the public interest favors the stay of the injunction. They argue that the disruption of movants' supply of infringing goods will result in a general disruption of manufacturing in America because Crucible produces no equivalent products and any conversion of its facilities in order to produce these products would necessarily take months.

Crucible responds that the only harm that will befall the movants if the injunction is not stayed is that they will be denied the profits which they improperly reap from their violation of Crucible's exclusive rights in the patents. Secondly, Crucible contends that it will suffer irreparable harm if the injunction is stayed. It argues that harm can be presumed from the continued infringement of its exclusive patent rights by movants, and that this is enhanced by the danger of the entry of additional third-party infringing competitors and the significant possibility that it will not be able to recover any award for damages from Stora in either Sweden or the United States.

The United States Constitution granted Congress the power to award "inventors the exclusive right to their . . . discoveries." Article I, §8, Cl. 8. To protect this right Congress through 35 U.S.C. §283 provided that injunctions be granted under the principles of equity to "prevent the violation of any rights secured by patent, on such terms as the court deems reasonable." In addressing the application of this section and a motion for preliminary injunc-

tion in *Smith International* v. *Hughes Steel Company,* 718 F.2d 1573, 1581 (Fed.Cir. 1983), the court stated:

> Once the patentees' patents have been held to be valid and infringed he should be entitled to the full enjoyment and protection of his patent rights. The infringer should not be allowed to continue his infringement in the face of such a holding. The court should not be reluctant to use its equity powers once a party has so clearly established his patent rights. We hold that where validity and continuing infringement have been clearly established, as in this case, immediate irreparable harm is presumed.

Stora, as in *Smith International,* was aware of Crucible's patents and, based upon the assumption it was infringing Crucible's patent, chartered a strategy "to check patent validity; contest patent validity; and in the process, to get defendants' products into the United States market." *Crucible,* 594 F.Supp. at 1264. Stora assumed the risk that its strategy would not succeed, that the patents would be found valid and its business and markets thereafter disrupted. We have found that the patents' validity and continuing infrigement clearly have been established; we have, *inter alia,* found that the patents were "revolutionary", and achieved that which was considered to be incompatible properties in the same product. Consequently, as in *Smith International,* plaintiff now is entitled to its injunction and Stora, therefore, should not be heard to complain of that which it had every reason to anticipate would be the result if it lost its gamble.

Crucible has raised a serious question whether Swedish courts would enforce a foreign judgment concerning the validity and infringement of foreign patents. The court has considered the affidavits submitted by the parties. The

court concludes that the affidavits of Bertil Lundquist submitted by movants are not responsive to Crucible's concern based on the affidavit of Fritz Engstrom submitted by Crucible that Swedish courts could retry the issues of validity and infringement. Furthermore, Crucible sufficiently has established that there is some question as to whether Stora's U.S. subsidiaries have enough assets to satisfy a monetary judgment after the reorganization of Uddeholm and Fagersta.

Finally, with respect to the public interests, the court has considered the letters and affidavits submitted by companies indicating the impact that an injunction would have upon their particular businesses. In response Crucible contends that, contrary to the movants' allegations, Crucible's currently markets products equivalent to the movants' ASP products and that it can supply all present demand therefor. In any event, the court finds that the overriding public interest is in the implementation of the underlying policy of our patent laws to encourage and protect the discovery of new processes and products even if this occasionally may result in temporary shortages of patent-protected products. The *Holtz* patent will expire in less than six years, and the *Steven* patent in less than four. Further delay in executing the court's injunction and, thus, providing Crucible with the patent rights to which it is entitled would be inimical to the best interests of the public.

For the foregoing reasons we will deny the movants' moton for stay of the injunction pending appeal.

II.

MOTION TO VACATE INJUNCTION

In paragraph four of the order of court dated October 11, 1984, the court "permanently enjoined" further infringement of the patents by ASP 23, ASP 30, and ASP 60. Stora and Kloster contend that because the antitrust defenses are still unresolved the judgment of this court is not final and, therefore, a permanent injunction is premature.

Crucible argues that the court can enter a permanent injunction because *Smith International* expresses a strong policy in favor of injunction once patent validity and infringement are clearly established. It further argues that any permanent injunction issued by the court can be modified pursuant to Rule 60(b)(5) if equities require, and that Stora has not demonstrated a sufficient likelihood of success on its antitrust claims to justify forestalling a permanent injunction.

In July 19, 1979, we ordered, *inter alia*, that Stora's "antitrust claim" be severed from the trial on patent vaildity, infringement and enforceability and that it be included with the trial on damages. During hearings on August 9, 1979, on Crucible's motion to vacate that order, Stora's counsel stated,

> It is our position that the likelihood of the antitrust claim being pursued is small; therefore, it is silly for the parties and the Court to waste valuable time and money on discovery at this time in view of the likelihood that the antitrust claim will eventually not be pursued.
>
> Again, I must repeat that Stora and Uddeholm are unwilling at this time to take an absolute dismissal

> with prejudice of that counterclaim. They would prefer to go ahead with discovery rather than have a dismissal.

(Transcript of proceedings, August 9, 1979, p. 8). Stora's counsel also stated at that time,

> The antitrust counterclaim would not come up until there is an accounting stage, so it would be prepared to go to trial immediately without the discovery on the antitrust phase of that stage because the issues before the court at that stage are patent infringement, patent validity and patent enforceability, not the antitrust or the accounting.

Id. at 16-17. Based upon these statements of counsel and Crucible's desire to have discovery continue on Stora's antitrust claim, the court refused to vacate the order severing trial, but did grant Crucible's motion to the extent that discovery on the "antitrust claim" was permitted to continue. (Order of court, August 9, 1979). The court, therefore, did not limit discovery on Stora's antitrust defenses or counterclaim. After a trial on the merits, we issued the order of October 11, 1984, which is the subject of the present motion to vacate. During the trial, Stora did present evidence on certain of its defenses, but, without seeking clarification of the court's severance order and at its own risk, chose not to present evidence on certain of its antitrust defenses.

After trial, both Crucible and Stora requested that the court direct the entry of final judgment on patent validity and infringement and certify the judgment under Fed.R. Civ.P. 54(b). The court realizes that if Stora is successful in proving its antitrust claim the circumstances may require the court to refuse to enforce Crucible's patents,

since "[i]t is a principle of general application that courts, and especially courts of equity, may appropriately withhold their aid where the plaintiff is using the right asserted contrary to the public interest." *Morton Salt* v. *G.S. Suppiger,* 314 U.S. 488, 492 (1942). However, during proceedings on the present motion to vacate held on October 5, 1984, the court indicated the reasons why, after balancing the equities in this case and considering the public policy upon which our patent laws are based, the court believed that Crucible was entitled to a permanent injunction even though the antitrust claim yet had not been resolved. (Transcript of October 5, 1984, pp. 5-12). Our reasoning remains unchanged, accordingly, we will deny the movants' motion to vacate the present permanent injunction.

In summary, the court has determined that Crucible has met its burden of showing that a preliminary injunction should be issued enjoining the infringement of the patents in this suit. After many years of litigation, two unanimous panels of the PTO Board of Appeals in favor of Crucible, a trial on the merits, which culminated in a ruling also in favor of Crucible, and after consideration of Stora's and Kloster's challenges and objections to that ruling, the court is satisfied that Crucible has shown "beyond question" that the *Holtz* and *Steven* patents are valid. Crucible, therefore, has demonstrated not only a likelihood of, but actual, success on the merits. *Jenn-Air Corporation* v. *Modern Maid Company,* 499 F.Supp. 320 (D.Del. 1980), *aff'd,* 659 F.2d 1068 (3d Cir. 1981). The court has considered and balanced the injury that likely will be suffered by Stora, Kloster and Crucible depending on whether an injunction is granted or denied. (*See infra* pp. 8-11). And the court has weighed the public interest in enforcing the policies underlying our patent laws. In a few years

the *Holtz* and *Steven* patents will expire. It is clear that to further delay Crucible's enjoyment of its exclusive patent rights would be inequitable to it and contrary to the public's interests and that irreparable harm to Crucible would result. Accordingly, we find that Crucible has sustained its burden of showing that a preliminary injunction is justified on the present facts. However, because we have found above that a permanent injunction should be entered, we need not at this time address the issue of security under Fed.R.Civ.P. 65(c).

For the foregoing reasons the movants' motion to vacate the injunction will be denied.

III.

MOTION TO MODIFY INJUNCTION

The court will deny Kloster's motion to modify this court's October 11, 1984, order to indicate specifically that it is not enjoined by the injunction. Further, we will deny Kloster's motion to modify paragraph 4 of the order by deleting the phrase, "successors in interest and assigns." *Regal Knitwear* v. *NLRB*, 324 U.S. 9 (1944).

IV.

MOTION FOR AMENDMENT OF FINDINGS AND JUDGMENT UNDER FED.R.CIV.P. 52(b) AND 59(e)

A. *Supplemental Findings on Fraud*

In the court's opinion of September 19, 1984, the court stated, "At trial, counsel for defendant stated that defendants were not alleging fraud to invalidate the *Holtz* and/or *Steven* patents, but merely were attempting to show unclean hands to establish a basis for attorneys' fees in

the event defendants prevailed." (Opinion at 43). In Stora's reply brief after trial, however, they assert that they had not waived the issue of fraud or inequitable conduct as a defense and that claim 30 of the *Holtz* patent was unenforceable based on that defense. (Stora's Reply Brief after Trial at 47-62). Because Crucible believes that Stora is likely to make the same argument on appeal, and since it believes this court made the necessary findings to reject Stora's defense, Crucible now moves that the court enter the following proposed findings as an alternative ground for its decision on the issue of fraud or inequitable conduct:

> Further, defendants have failed to establish fraud or inequitable conduct. The Court has already found that the *Reen I* reference that was before the PTO was more pertinent than the *Comstock* reference alleged to have been improperly withheld (*see* p. 2, *supra*). Thus, the *Comstock* reference was not "material" and the failure to specifically cite it to the PTO was neither fraudulent nor improper. *Environmental Designs Ltd.* v. *Union Oil Co.*, 713 F.2d 693, 698, 218 U.S.P.Q. 865, 870 (Fed.Cir. 1983), *cert. denied*, 104 S.Ct. 709 (1984).
>
> Furthermore, the Court agrees with the PTO Board of Appeals that there was insufficient evidence of culpability by the inventor, Mr. Holtz, or his legal representatives to support a charge of fraud or inequitable conduct. The evidence of such culpability offered at trial was totally insufficient to meet the clear and convincing standard called for in such cases. *Vandenberg* v. *Dairy Equipment Co.*, 740 F.2d 1560, 1568 (Fed. Cir. 1984).

Stora agrees that findings relating to this issue, if added by the court, will be of assistance to a reviewing court on the issue of inequitable conduct, although Stora opposes

any proposed finding, however phrased, that it has failed to establish inequitable conduct during the prosecution of the *Holtz* patent applications.

The court specifically found, as did the PTO Board of Appeals, that *Reen I* was more pertinent than *Comstock. Crucible,* 594 F.Supp. at 1251-53. Consequently, in the opinion of the court, *Comstock* was not "material" and the failure to specifically cite it to the PTO was neither fraudulent nor improper. *Environmental Designs, Ltd.* v. *Union Oil Co.,* 713 F.2d 693, 698, 218 U.S.P.Q. 865, 870 (Fed. Cir. 1983), *cert. denied,* 104 S.Ct. 709 (1984). The court agrees with the PTO Board of Appeals when it stated, "A reasonable examiner would not have considered *Comstock* important in deciding whether to alow these claims." PTO Board of Apepals decision, April 25, 1984, at 15). The court also agrees that Stora failed to meet its burden to show by clear and convincing evidence sufficient fraud or inequitable conduct by Mr. Holtz or his legal representatives. *Vandenberg* v. *Dairy Equipment Co.,* 740 F.2d 1560, 1568 (Fed.Cir 1984); PTO Board decision of April 25, 1984 at 15, 18.

B. *Proposed Amendment of the Judgment*

Crucible has proposed that paragraph 4 of the court's order of October 11, 1984, be broadened so that the permanent injunction enjoin the making, using or selling of not only ASP 23, ASP 30, and ASP 60 products but also any product which infringes claim 30 or claim 4. The plaintiff relies on *Smith International, supra,* which stated that a permanent injunction "prohibits infringement by any product, not just those involved in the original suit." *Smith International,* 718 F.2d at 1581 n.8 Stora contends that *Smith International* supports its position that only the ASP

products involved in the suit should be enjoined because the court at this time can only issue a preliminary injunction. Furthermore, relying upon *Herschensohn* v. *Hoffman,* 593 F.2d 893 (9th Cir. 1979), Stora argues that to enjoin the infringement by any product would violate the requirements of Fed.R.Civ.P. 65(d) which requires that the injunction be specific in terms.

Stora's reliance on *Herschensohn* is misplaced. In *Herschensohn* the order found not to comply with Fed.R. Civ.P. 65(d) specified neither the patent nor the claims of the patent that were fringed. Furthermore, the Ninth Circuit Court specifically found that no injunction had been ordered at all, but, rather, that the lower court had only directed that a permanent injunction against infringement would be entered. Accordingly, because we have determined above that a permanent injunction should be entered in this case, we find that the plaintiffs are entitled to an injunction against the infringement of claim 30 of the *Holtz* patent and claim 4 of the *Steven* patent by any product.

For the foregoing reasons Crucible's motion for amendment of findings and judgment will be granted.

V.

MOTION FOR EXTENSION OF TIME IN WHICH TO APPEAL

Because Crucible filed a motion to amend the findings of the court under Fed.R.Civ.P. 52(b), the court will deny Kloster's motion as moot. Fed.R.App.P. 4(a)(4).

An appropriate order will follow.

/s/ GUSTAVE DIAMOND

United States District Judge

Dated: March 12, 1985

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CRUCIBLE, INC.,
Defendant.

ORDER OF COURT

AND Now this 12th day of March, 1985, in accordance with the memorandum opinion filed this date in the above-captioned matter, IT IS ORDERED that the motion of Kloster

Speedsteel AB, Speedsteel of New Jersey, Inc., Fagersta AB and Fagersta, Inc. to vacate or modify injunction, or in the alternative, for a stay of injunction pending appeal be, and the same hereby is denied; and,

It Is Further Ordered that defendants' motion to stay injunction pending appeal be, and the same hereby is, denied; and,

It Is Further Ordered that the order of October 11, 1984, staying the injunction pending our ruling on defendants' motion to stay pending appeal be, and the same hereby is, vacated and the injunction entered on that date as amended herein shall become effective forthwith; and,

It Is Further Ordered that the motion for amendment of findings and judgment under Fed.R.Civ.P. 52(b) and 59(e) be, and the same hereby is, granted and that:

1) Paragraph 4 of the order of October 11, 1984, hereby be modified as follows:

   Each of the defendants, their officers agents, servants, employees, and any other person, corporation, or organization acting in concert with them is hereby permanently enjoined and restrained during the life of the respective U.S. patents identified above from the making, using or selling of products infringing claim 30 of U.S. Patent No. 3,746,518 or claim 4 of U.S. Patent No. 3,561,934, and from inducing or contributing to the making, using or selling of such products by others;

2) The following supplemental findings be inserted immediately before the final sentence of this court's September 19, 1984 opinion:

Further, defendants have failed to establish fraud or inequitable conduct. The court has already found that the *Reen I* reference that was before the PTO was more pertinent than the *Comstock* reference alleged to have been improperly withheld (see p. 2, *supra*). Thus, the *Comstock* reference was not "material" and the failure to specifically cite it to the PTO was neither fraudulent nor improper. *Environmental Designs, Ltd* v. *Union Oil Co.*, 713 F.2d 693, 218 U.S.P.Q. 865 (Fed. Cir. 1983), *cert. denied*, 104 S.Ct. 709 (1984).

Furthermore, the court agrees with the PTO Board of Appeals that there was insufficient evidence of culpability by the inventor, Mr. Holtz, or his legal representatives to support a charge of fraud or inequitable conduct. The evidence of such culpability offered at trial was totally insufficient to meet the clear and convincing standard called for in such cases. *Vandenberg* v. *Dairy Equipment Co.*, 740 F.2d 1560 (Fed.Cir. 1984).

IT IS FURTHER ORDERED that the motion of Kloster Speedsteel AB, Speedsteel of New Jersey, Inc., Fagersta AB and Fagersta, Inc. to extend time to file notice of appeal be, and the same hereby is, denied.

/s/ GUSTAVE DIAMOND

United States District Judge

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IN THE

DISTRICT COURT OF THE UNITED STATES

FOR THE WESTERN DISTRICT OF PENNSYLVANIA

Civil Action No. 74-917

CRUCIBLE, INC., a Delaware corporation, and CRUCIBLE MATERIALS CORPORATION, a Delaware corporation,
Plaintiffs,

v.

STORA KOPPARBERGS BERGSLAGS AB and UDDEHOLMS AB, both Swedish corporations,
Defendants.

Civil Action No. 74-1062

STORA KOPPARBERG CORPORATION, a New York corporation, and UDDEHOLM STEEL CORPORATION, a New York corporation,
Plaintiffs,

v.

CRUCIBLE, INC.,
Defendant.

ORDER OF COURT

AND NOW, this 25th day of March, 1985, IT IS ORDERED that subparagraph 1) of this court's order dated March

12, 1985, be, and the same hereby is, amended to read as follows:

1) Paragraph 4 of the order of October 11, 1984, hereby be modified as follows:

Each of the defendants, their officers, agents, servants, employees, successors in interest and assigns, and any other person, corporation, or organization acting in concert with them is hereby permanently enjoined and restrained during the life of the respective U.S. patents identified above from the making, using or selling of products infringing claim 30 of U.S. Patent No. 3,746,518 or claim 4 of U.S. Patent No. 3,561,934, and from inducing or contributing to the making, using or selling of such products.

/s/ GUSTAVE DIAMOND

United States District Judge

Order

UNITED STATES COURT OF APPEALS

FOR THE FEDERAL CIRCUIT

Appeal Nos. 85-2174
85-2214
85-2215
85-2274

KLOSTER SPEEDSTEEL AB, SPEEDSTEEL OF NEW JERSEY, INC.,
Appellants,

STORA KOPPARBERGS BERGSLAGS AB, A Swedish Corp., and UDDEHOLMS AB, A Swedish Corp., et al.,
Apellants/Cross-Appellees,

v.

CRUCIBLE INC., ETC., AND CRUCIBLE MATERIALS CORP., ETC.,
Appellees/Cross-Appellants.

ON PETITIONS FOR REHEARING

Before MARKEY, *Chief Judge,* NICHOLS, *Senior Circuit Judge,* and NEWMAN, *Circuit Judge.*

MARKEY, *Chief Judge.*

ORDER

Stora Kopparbergs AB, Uddeholms AB, Stora Kopparbergs Corporation and Uddeholms Steel Corporation (Stora), and Kloster Speedsteel AB and Speedsteel of

New Jersey, Inc. (Kloster) have filed Petitions for Rehearing of *Kloster Speedsteel AB* v. *Crucible Inc.*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986). The petitions are granted to the extent of making the following changes in the opinion issued by this court on June 11, 1986:

a) On page 9, lines 12-13, delete "Patent drawings are not drawn to scale, and that" and substitute—That—.

b) On page 9, line 14, delete "drawing" and substitute —photograph—.

c) On page 9, line 16, after "elements,", insert—i.e., chemical inhomogeneity, inability to achieve full density without sacrificing fine carbide size,—.

d) On pages 33, lines 7-15, delete "The effort of Stora to evade the effect of any possible injunction by divesting itself of its facilities for producing infringing products, the effort of Kloster to evade the injunction and thus gain freedom to continue the infringement and force Crucible to a second lawsuit, and the continuation of those efforts by appeal to this court, do not reflect the highest ethical standards of either the business community or the legal profession.", and substitute—There has been no determination that Stora divested itself of its facilities for producing infringing products for the purpose of evading the effect of any possible injunction. Nor has it been determined that Kloster's effort to evade the injunction was for the purpose of gaining freedom to continue the infringement and force Crucible to a second lawsuit. Such purposes would of course not reflect the highest ethical standards of either the business community or the legal profession.—.

e) On page 37, delete footnote 17.

IT IS HEREBY ORDERED THAT:

1) The petitions for rehearing are granted, and the opinion issued June 11, 1986 is modified, to the extent indicated above.

/s/ HOWARD T. MARKEY

HOWARD T. MARKEY
Chief Judge

15 Aug. 86
Date

Sept. 29, 1964 O. W. REEN 3,150,444

METHOD OF PRODUCING ALLOY STEEL

Filed April 26, 1962

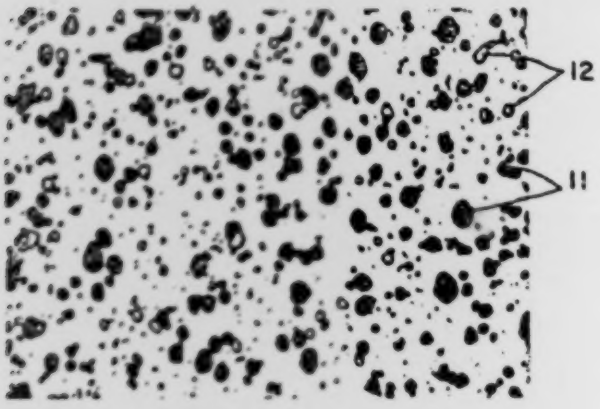

FIG. 1

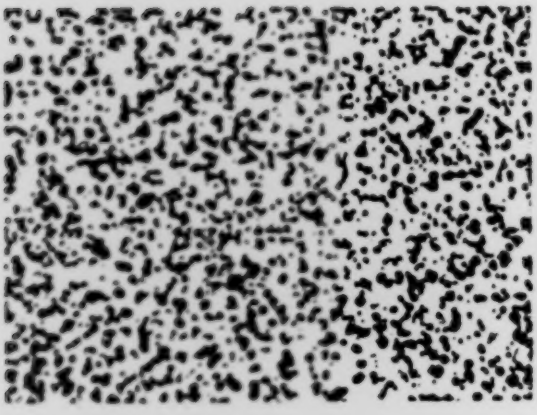

FIG. 2